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MEDICAL APPOINTMENTS: IMPORTANT NOTICE

EDITORIAL NOTICES

The Beattie-Smith Lectures.¹

(UNIVERSITY OF MELBOURNE.)

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THE PREVENTION OF NERVOUS AND MENTAL DISORDERS: SOME POSSIBILITIES AND LIMITATIONS.

LECTURE I.

I FEEL it a very great honour to be appointed Beattie-Smith lecturer for this year. The lectures have now been given over a period of fourteen years; many varied subjects have been chosen, which,

it has been felt, fulfil the wish of the founder that they should be concerned with the early treatment of mental disorder.

Although I am sure that the subject I have chosen, that of the prevention of these troubles, must have occurred to very many former lecturers, there have been, so far as I can remember, no previous attempts to deal with it. Possibly my own efforts may be regarded as the result of foolhardiness, but I am under no misapprehension as to the difficulties of this subject.

My reasons for choosing to attempt this task are twofold. First, I feel that in spite of many very real advances in treatment, the task of curing even an early mental or nervous disorder is generally one that is extremely time-consuming and difficult. Unfortunately, in spite of the object of the founder of these lectures and many other influences to encourage early treatment, the majority of patients are well advanced in their illness before they come

¹ Delivered at Melbourne on November 26 and December 1, 1936.

for treatment, and have a correspondingly longer and more difficult path to recovery. Unfortunately many are unable to travel this path to the end of complete restoration to health.

Secondly, my work at the Children's Hospital and elsewhere has interested me in the behaviour problems, personality difficulties and neuroses which occur in childhood and which will possibly lead to nervous and mental trouble in later life. These seem in some ways easier to deal with in childhood than in later life, though they have difficulties of their own. This has aroused the hope that something might be done to prevent the development of these conditions.

Under the terms nervous and mental disorders are grouped many very dissimilar types of conditions which have completely different causation; it will therefore be necessary in dealing with the prevention of these disorders to survey briefly their nature and causation.

It is of fundamental importance to bear in mind that in all these problems we are dealing with an organism which reacts to its environment in such a way that food is obtained and the race is preserved, and that life is a continual process of adaptation to environment. In life the organism is integrated in various ways, for example, by tissue continuity, hormones and the nervous system. This integration is generally maintained, even in disease, and the activities of the organism in disease are largely to be considered as reactions which will tend to preserve this integration and adaptation.

In nervous and mental disorders the signs of failure of integration and adaptation are often to be found scattered throughout all levels of the organism, for example, failure of appetite, loss of weight, rapid pulse rate, abnormal nervous signs, and so on, but the characteristic feature is that the thoughts, feelings and behaviour show some deviation outside the limits which we regard as normal.

These conditions are generally subdivided into the groups of neuroses, psychoses, conditions of sub-normal intelligence, character disorders and epilepsy. These again are subdivided, though there is often considerable overlap, so that a case placed in one class may show some characteristics of another.

The degree of invalidism and unhappiness resulting from these conditions is difficult to estimate, especially as regards the neuroses. Some authorities state that this group accounts for at least one-third of the general ill-health of the community, and investigations in industrial ill-health have certainly shown that a large proportion of persons in varying occupations show neurotic symptoms.

Of 187 subjects having long sick leave, that is, over thirty days in one period, 47.5% had neurotic symptoms and 52.5% were free. An investigation in Melbourne showed that some 14% of children attending kindergartens and schools had problems of behaviour, personality or intellect, 7% being sufficiently severe to require attention.

Many of those suffering from psychoses are able to lead existences outside of institutions, but, neglecting these, the figures of those in mental institutions are alarming. For example, in the United States of America there are more beds in hospitals for mental patients than for all others put together, and it has been estimated there that at present 4% of children entering school will at a later date enter a mental hospital.

In Victoria there has been a steady increase in the number of registered insane from 4,768 in 1905 to 6,927 in 1934. There were in 1934 862 admissions of certified insane, 1,135 certified admissions to the receiving house of persons apparently insane, and 504 admissions of voluntary boarders. Some of these figures overlap, but well over 1,700 patients were admitted for treatment to public or private mental institutions during 1934, and the direct cost to the government during this period was a third of a million pounds.

Mental defectives are a problem of rather uncertain extent, but the investigation of Dr. Ernest Jones some years back showed that about 2% of the school children were definitely defective, and the Lewis report in England gives the figure as 0.8% of the total population. Moreover, the "submerged tenth" of the population, the delinquent, dependants and general misfits, are largely composed of those with some nervous or mental troubles.

It will be seen, therefore, that any possible steps which will serve to reduce this burden on the community deserve investigation and support. In the causation of any kind of behaviour, including disease, one isolated factor is never responsible. Instead, we find a series of factors leading to this behaviour.

Inheritance.

The factor which often seems to be given most prominence in the causation of nervous and mental disorders, both by the lay public and the medical profession, is inheritance. There is considerable difference of opinion on this matter and some discussion seems desirable. There has been a great advance in our knowledge of inheritance since Mendel's original paper of 1865 was rediscovered at the beginning of this century, and all that can be done in these lectures is to touch on some fundamental facts.

The mechanism by which the germ cells unite has been carefully studied in the lower animals, and the way in which certain characteristics are passed from parent to offspring in the chromatin of the nucleus has been well established.

It has been widely accepted, following the work of Weissman, that these germ cells, which are set aside very early in the embryonic life of the parents, are preserved within the body in such a way that they are completely unaffected by any changes in the health of the parent, short of complete destruction. Any "mutations" or inheritable variations which occurred in the offspring were therefore regarded as being a matter of chance in the division of the germ cells, and in no way due to the environ-

ment under which the germ cells were living, that is, the blood and tissue fluids of the parents. Apparently these views have had to be modified, and it is now believed that certain variations which can be inherited by their offspring can in laboratory animals be induced by X rays and possibly by other influences, for example, certain feeding. In the majority of such cases these variations are of such a nature that the survival value of the individual is decreased, and it is only very rarely that they are of benefit.

One investigator, Stockard, experimented with the effect of alcoholic fumes on guinea-pigs. He claimed that the offspring of such alcoholized animals, male or female, when mated later with alcoholized or non-alcoholized mates, showed an undue proportion of sterility and stillborn or weakly offspring. The surviving animals were not subjected to alcohol, and when mated they also produced a large percentage of defects and deformities of many kinds, far more than occurred with the offspring of non-alcoholized parents. This result continued till the third generation, but in the fourth generation the surviving animals had a prenatal mortality less than normal. This seemed to show some selective action by alcohol in allowing the survival of the fittest germ cells. Unfortunately (or fortunately) the same results have not been obtained by other workers repeating the same experiments, and this very important matter must remain unsettled with the evidence rather against Stockard's conclusions.

Numerous other experiments have been performed, and we may say that the germ cells are at least very resistant to influences that will give defects appearing in later generations. This is, of course, a matter for congratulation, as it means that, in spite of the fact that parents may lead unhealthy lives, with many potentialities undeveloped, their offspring still maintain these potentialities, and that they may develop further in a more satisfactory environment.

So far we have been dealing only with the germ cells before impregnation and with their preservation, but following fertilization there is a period of intrauterine development during which we might expect the embryo to be affected either for good or bad. Once again it seems that there is a great deal of protection of the developing embryo, though this is probably less than with the germ cells. Especially in the first four to five weeks of intrauterine life, when the germ cells of the embryo are developing, it seems possible that both the embryo and the possible offspring of its germ cells may be injured by maternal ill-health and poor nutrition.

Experiments have shown that lack of vitamin A in the diet of pregnant sows may give rise to lack of bodily development in their offspring, for example, withered limbs or failure of eyes to develop. It is possible that some such deficiencies may be responsible for lack of human development also.

In clinical investigation cases occur at times which seem to point to some such effect on germ cells and embryo, but one must always be on guard as to other possible interpretations, for example, the offspring of alcoholic parents may be abnormal, not owing to the effect of alcohol, but to the temperamental defects which rendered the parents alcoholic. The possibility that syphilis, without being actually transmitted as in congenital syphilis, may affect the vitality of the germ cells and embryo, has been widely discussed and in some quarters accepted.

We may sum up this discussion by saying that the possibility of such influences as alcohol, tuberculosis, lead and poor nutrition acting on the germ cells and developing embryos requires careful investigation. Even the effect of mental strain on the pregnant mother, by affecting her endocrine balance, and the environment of the embryo require consideration.

Neuropathic Inheritance.

Leaving these possibilities aside, we come to discuss the question of a "neuropathic inheritance". It is recognized by the majority of authorities that amongst the relatives of those suffering from mental disease can be found many who are in some way abnormal, and a few statistical investigations have been made to determine the ways in which these families compare with those of normal people.

The comparison of possible causative factors in the heredity of psychotic as opposed to non-psychotic people has shown that many factors which at times have been considered a sign of an unhealthy mental inheritance, such as apoplexy (strokes), senile dementia, and many nervous diseases, are of no importance, as they occur more often in the antecedents of non-psychotic than of psychotic individuals. Other factors, such as psychoses in the antecedents, are, however, more frequent in the psychotic than the non-psychotic.

In one investigation the total inherited tainting of the psychotic individuals with insanity, nervous disorders, apoplexy, alcoholism, senile dementia, abnormal character and suicide was 76.8%, but in the non-psychotic it was 59%; and in another the figures were 77% for the psychotic and 66.9% for the non-psychotic; so that the difference is surprisingly small. In the psychotic, however, the direct tainting from the parents is 50% to 70%, as compared with 33% in the non-psychotic. Parents and siblings of the psychotic have almost double the amount of hereditary tainting of the non-psychotic.

Some of the investigators have neglected this comparison and have compiled family trees showing the way in which certain families seem to abound in abnormalities. Such notorious families as the Jukes and Kalliaks are well known, and even if we allow for some exaggeration are very impressive. For example, the descendants of Martin Kalliak and his wife, both apparently normal, are quoted to have had no abnormalities appearing in six genera-

tions, while his descendants by a feeble-minded girl included 222 feeble-minded in the same generations.

An interesting study was made in the clinic of Bleuler, where a family of 1,000 persons in six generations was investigated, showing a tendency for the family to improve and not to deteriorate. It is possible that these tendencies towards deterioration and improvement may tend to balance.

If we endeavour to investigate the neuropathic inheritance as a character inherited according to Mendelian laws, we find difficulty in delimiting the term, for it is wholly improbable that there is any one cause for the many conditions which have been regarded as neuropathic. There has been in some investigations a tendency to group together such dissimilar conditions as "apoplexy, Bright's disease, criminality", and right through the alphabet to "tumour and vagrant", and these certainly seem to include far too much. It seems far more likely that there are numerous inherited characters involved in such a list, together with many characteristics whose main causation lies in environment.

If we consider the biogenic psychoses, that is, schizophrenia and manic-depressive insanity, we find that attempts have been made to explain their occurrence as the result of inheritance along Mendelian lines. Attempts to prove this have been unsuccessful, for statistics are rendered of little value as a result of the modern tendency to very small families, miscarriages and the widespread prevention of child-birth. It is, however, found that in the majority of cases, but not all, the child of a manic-depressive parent, if psychotic, will suffer from a similar psychosis, and the same applies to schizophrenia.

Temperaments.

Some very interesting work has been done by Kretchmer on the correlation of physique and temperament, and in his book he gives some interesting family trees, showing how some families show a tendency to a type of "cycloid" character from which spring cases of manic-depressive insanity, while others with more "schizoid" characters show cases of developed schizophrenia. It seems probable that with careful investigation of the families of patients along these lines, more knowledge of inheritance will be found than in widespread statistical studies.

It seems in many cases to be true, as Kretchmer says, that "the endogenous (biogenic) psychoses are nothing but a marked accentuation of normal types of temperament". Temperament is generally regarded as mainly determined by the inheritance of a certain type of bodily make-up, with the endocrine glands and digestive system probably having a large influence in the type of temperament. For example, pronounced changes in temperament occur with considerable frequency at puberty and again to some extent at the menopause, and in these states it seems that we have to place the main emphasis on organic changes in the endocrine glands. Similarly, a thyroid gland which commences to

secrete too much or too little can produce marked change in temperament.

It seems possible that factors which appear to be temperamental are modifiable to some extent by illness, education and emotional stress, for example, fear, or by psychotherapy. It is therefore not necessary to commit ourselves to a fatalistic view even if we do regard some mental disorders as accentuations of normal temperaments, for this accentuation may result from environmental influences.

We are at present very ignorant of bodily peculiarities of metabolism that may be the cause of these accentuations of temperament. Much work is being done in this direction, but the results are often inconclusive. It is, however, possible that in the future we may be able so to adjust the individual's inherited metabolic make-up, that abnormal temperaments may be beneficially modified. Unfortunately, with very few exceptions, such as in patients suffering from thyroid disease, this must remain a dream for the future to make real.

Environment.

The study of the physiology of reproduction and growth has shown that it is unwise to take too rigid a view of the potentialities of the chromatin bodies, for it is found that in the very early life of the ovum, environmental influences can produce marked changes in development.

It has been well said by Jennings that:

Any characteristic requires for its reproduction both an adequate stock of chemicals (in the chromatin bodies) and an environment adequate for its production through proper interaction of these chemicals with one another and with other things;

and that:

all characteristics are hereditary and all are environmental, but no characteristic is exclusively hereditary or exclusively environmental.

He further states that:

Beyond all other organisms man is distinguished by the possession of many sets of inherited characteristics: the decision as to which shall be produced depending on the environment.

Some very interesting work has been done, especially in America, on the characteristics of identical twins. These are twins who develop from the same germ cells, that is, one ovum and one spermatozoon, by a complete cleavage in the fertilized ovum at a very early stage. It would be expected that these twins would be identical in every respect. This is not completely borne out by detailed tests, either physical or mental, but nevertheless the points of difference are very slight, and such twins have therefore been regarded as affording test material to determine the relative effects of heredity and environment.

References have been found to four sets of identical twins who were separated at early ages in childhood and brought up apart for many years. When they were investigated it was found that differences occurred either in intelligence or temperament, but

that these were probably no greater than in those reared together, so that no startling result followed this investigation.

Many possible sources of fallacy, however, may be present in such an investigation: intelligence tests may fail to reveal slight differences in intelligence; slight environmental differences, social and emotional, existing even in children reared together, may have a profound effect on later development; and there are difficulties in evaluating temperaments.

Some recent studies by Rosanoff and his colleagues of the incidence of the biogenic psychoses in twins are of considerable interest. These show that in both manic-depressive and schizophrenic patients hereditary factors are of importance, are inadequate by themselves, and are not always present. In manic-depressive psychoses, hereditary factors seem to be highly specific, but this is not so with schizophrenia, and it is in this condition that one often finds other types of abnormal mentality in the family. No such studies of the hereditary factors in the neuroses have been made.

In no other section of mental and nervous disorders is the individual so obviously handicapped at birth as in that of mental deficiency. Included in this group are to be found idiots and imbeciles who can be regarded only as monstrosities due to incomplete or abnormal development. This is shown by bodily defects, for example, malformed, undersized or enlarged heads, peculiarities in the face, and deformity of the limbs, as well as by obvious abnormalities in the structure of the brain.

Although these changes are as a rule obviously congenital, it is very doubtful to what extent they can be regarded as inherited, that is, due to a defect in the germ plasm. By some authorities, such as Tredgold, this is considered by far the greater factor in 80% of cases of mental defect, while others give very much lower figures, with an increased percentage due to accidents at birth, infections, and so forth.

It seems that insufficient attention has been given in some of these estimates (in those of Tredgold for example) to the neuropathic inheritance of normal individuals already discussed. The grosser forms of mental defect are generally recognized as being more often due to accidents at birth, intra-uterine infections, intoxications, and so forth, than the milder cases with their apparently insignificant bodily defects, which seem due more to germinal defects.

At the other extreme, in regard to obvious defect from birth, must be placed the neuroses. In many of these cases the rôle of inheritance seems to be very slight and environmental factors seem of great importance, but statistics on this subject would be very difficult to obtain and interpret.

It would be expected that in epilepsy statistics in regard to inheritance would be easier to obtain and to interpret, for, whereas many neuroses pass unrecognized, the epileptic seizure is so dramatic

that recognition would be thought quite simple. There are, however, difficulties even here, for it seems that the epileptic tendency may exist as shown by character defects without the occurrence of seizures. Moreover, seizures may occur in apparently normal persons as a result of various bodily diseases, such as kidney disease, lead intoxication, infection, and so forth; and there may be little tendency for these seizures to recur once the cause has been removed. Some undoubted epileptic symptoms, such as minor attacks, may be mistaken for faints, peculiar feelings, queer turns and so forth, and may not be elicited in the investigation of family histories. Moreover, the differentiation between hysterical seizures and epilepsy is sometimes very difficult.

The inheritance of epilepsy in twins has been also investigated, and it is found that hereditary factors undoubtedly exist, but that these are often in themselves inadequate and may be absent.

Although there are conditions in which a definite organic psychosis is inherited, for example, Huntington's chorea, these are comparatively rare, and, generally speaking, inheritance seems of minor importance in the organic psychoses.

To sum up this discussion of inheritance as a factor in the causation of nervous and mental disorder, it seems that it must be considered throughout as a possible and often a strong predisposing cause; with the exception of some cases of organic psychosis and mental defect, however, it is insufficient as a sole cause, and other factors have to be recognized. Moreover, there seems to be a variation in the extent to which inheritance can be blamed for the different groups of disorders.

I trust that I have shown that even with a defective inheritance it is doubtful how far this can be considered as due to an inherent germinal defect and how far to harmful influences acting on the germ plasm and embryo.

The possibility of preventing these disorders by eradication of this predisposition must now be considered.

Although the degree to which the predisposition is induced by faulty health or habits of the parents may be unknown, we have seen that its operation is a distinct possibility in many cases, and we may hope for at least some modification of it by efforts to induce a healthier community. Such conditions as alcoholism, syphilis, lead poisoning, tuberculosis and faulty nutrition, which we have seen to be at least suspect, are none of them inevitable, and their prevention would be further encouraged if it could be definitely shown that they were factors in the causation of a damaged germ plasm and embryo. In the meantime their prevention should certainly be encouraged for other reasons than this.

As regards the problem of a faulty germinal inheritance, we are faced with much scientific uncertainty, but this does not prevent members of our legislature from advocating "sterilization" as the panacea for all ills, though the determination of who is to be sterilized is left to the imagination.

Sterilization.

In dealing with mental defectives we have seen that while the condition of some is due to accidents at birth, intoxications, infections and so forth, there is evidence that some defectiveness is due to an inherent germinal defect. Those in the first group often represent unsatisfactory parents, and it is possible that their germ cells may also have been damaged; it would seem justifiable to prevent their reproduction, at any rate with one similarly afflicted. In the second group the indications for prevention of reproduction seem still more definite for the same reasons, that is, they are unsatisfactory parents and will probably have unsatisfactory children. It has been hoped that this would quickly wipe out the whole problem, but there is little justification for this hope.

The most optimistic estimates on a satisfactory scientific basis that I have found give the results of elimination of their reproduction either by sterilization or segregation as producing a reduction of from 1,000 per 10,000 to 82.6 in one generation, to 69.4 in two generations, and to 59.2 in three generations; that is, a reduction of approximately 40% in three generations.

These figures are, however, open to considerable dispute, and clinical observation seems to show that the great majority of mental defectives come from parents who could not previously have been proved unsuitable for mating, and that mental defectives themselves do not breed at the enormous rate that sensational reports would have us believe.

Families of mental defectives are sufficiently rare to provoke considerable interest; for example, in one family of ten, five will probably end their days in institutions for mental defectives, though the other five are apparently normal. Unless we are to prevent the mating of a very large percentage of the population, neither of these parents could be considered definitely unfit for marriage, though the mother is of dull mentality and the father alcoholic.

As a general rule defectives form only a small percentage of the family, and in advocating the sterilization of all who may give birth to mental defectives, we must be prepared to sacrifice many potentially useful citizens, who may or may not have impaired germ cells. Sterilization would probably lead to some improvement in the germ plasm of the race, but in the light of practical knowledge the extent of this cannot be estimated. It must always be remembered that there are other possibilities of harming and also of improving the germ plasm and its development in adults.

In America a committee of the Neurological Association has investigated this matter recently, and I propose to take this as the foundation of most of the following remarks. It is shown that of the twenty-seven American States that have enacted sterilization laws, only one (California) is now enforcing these at all thoroughly, and that in others the degree of enforcement is practically nil.

Sterilization has been enacted and in some cases made compulsory for hereditary feeble-minded,

insane, epileptic and certain criminal groups, while in Germany those with various organic diseases of the nervous system and sense organs and some chronic alcoholics have been included. The arguments for sterilization are then considered. It has been stated that these conditions are on the increase, but the committee considers that if the statistics of hospital admissions are corrected for age, this is not true, and that the only conditions which are increasing are those due to senility and cerebral arterial disease resulting from a lower death rate and increased length of life.

It has been stated that these defective people breed at a greater rate than the normal population, but the committee points out that the marriage rate is lower for these individuals than in the total population. This is especially true in some of the cases in which inheritance is most pronounced, for example, in mental defect and schizophrenia. Moreover, the birth rate amongst those who do marry is much lower than that in the total population, and the death rate of the mentally disordered and feeble-minded is higher than in the general population, and on the whole there is a greater degree of sterility among them. It is pointed out that marriage acts eugenically, as the mentally disordered and feeble-minded find it more difficult to obtain mates.

After discussing the enormous difficulties of applying the scientific principles of genetics to humanity, and the impossibility of rigidly separating the germ plasm from its environment, the committee adversely criticizes the concept of a neuropathic inheritance and the scientific background of most researches in the past. Some emphasis is placed on the fact that if in the past sterilization had been performed as advocated, for example, in Germany today, the world would undoubtedly have been poorer in works of genius.

Moreover, amongst the types of individuals who would probably have been prevented from entering the world are many who have proved of great value to society. Even the feeble-minded type of mental defective has proved of great value in the world as organized in the past and present, by being often docile, industrious and useful in employment.

The recommendations of the committee are that in the present state of our knowledge there is no warrant for the sterilization of persons who are themselves normal in order to prevent the appearance in their descendants of manic-depressives, schizophrenics, feeble-mindedness, epilepsy or criminal conduct. Neither is there scientific justification for sterilization on account of immorality or character defect. The detection of those who are themselves normal but the potential parents of socially inadequate offspring has been well said to be a matter for clairvoyance rather than science. Environmental are at least as potent as hereditary agencies in the genesis of the conditions being considered. Sterilization in the present state of our knowledge should be voluntary and regulatory rather than compulsory, and should be performed

only after careful investigation by a board of experts, who should strongly urge, suggest or recommend against sterilization according to its findings.

Sterilization can be recommended only in selected cases of certain diseases: First, in certain cases of hereditary organic degenerative conditions of the nervous system, for example, Huntington's chorea, hereditary optic atrophy and a few others. Secondly, in feeble-mindedness of familial type, and in this condition partly owing to the great difficulty that these individuals have in supporting a family. Thirdly, in schizophrenia, though in this condition it seems that sterilization is seldom called for, as most of the individuals require hospital care, and if they do not need to be in hospital they are generally of low sexual urge with a low birth rate. It might, however, be desirable in some persons before their discharge from hospital. Fourthly, in manic depressive states, though here great difficulties would be encountered, as from this stock many fine offspring arise. Fifthly, in epilepsy, mainly on the grounds that frequent attacks render the sufferers incapable of acting as satisfactory parents.

The report closes with an appeal for further investigation of the subject and suggestions as to how this can be carried out, and a statement that "no great or radical change in the complexion of society can be expected from any such legislation programme as is recommended or from any justifiable legislation".

It seems, therefore, that although legislation to legalize voluntary sterilization would be worth while, it would be a great mistake to regard this as the solution of all our difficulties, and we must endeavour to find other possibilities of preventing nervous and mental disorder. Advice as to the desirability of having children in marriages in which one or other of the partners has an unstable history is extremely difficult to give.

Cerebral Disease.

In searching for a cause of nervous or mental disease, if they are unable to satisfy themselves by the discovery of an insane aunt or an alcoholic grandfather and by the generalization from this that it is all due to inheritance, the lay and often the medical observer turn to the possibility of something wrong in the brain.

There is no doubt that in many cases there is definite damage to the nerve cells of the brain. This may be due to the degeneration of old age, which so commonly causes some failure of memory for recent events and other symptoms. In some cases this comes on earlier than normally and may cause emotional disturbance in the direction of abnormal variation in mood and emotional display, or persistent states of depression or excitement, possibly with delusions and hallucinations. Degeneration also occurs as a result of arteriosclerosis, which results in a faulty supply of blood and its nourishment, and also in profound anaemia or chronic kidney disease.

The growth of a tumour within the brain may give clinical signs of mental or nervous disorder without any localizing signs, such as paralysis, or any marked signs of intracranial pressure, but such cases are rare in spite of popular belief. Mental symptoms occur in less than 15% of brain tumours. Epileptic seizures, especially when developing in an adult, may, however, be the first sign of a cerebral tumour.

Syphilis is undoubtedly a prominent cause of brain degeneration, especially in the form of general paralysis of the insane, and about 10% of admissions to mental hospitals are of patients with syphilitic disease. This does not take into account the possibly devitalizing effect on the germ cells and embryo of syphilis in the parents, or grandparents, which has already been mentioned.

Another infection which has played a part, though only a small one, in the causation of mental abnormalities is *encephalitis lethargica*, which, especially in the young, may lead to marked changes in personality and behaviour.

The study of these cases has shed fresh light on the functions of the basal regions of the brain and their effect in determining the type of emotional responses. This in turn has led to fresh research on brain pathology to see whether any light can be thrown on the causation of the psychoses and neuroses, but so far it seems that no definite information has been obtained.

Considerable importance has been placed on the effect of infections in other parts of the body in causing nervous and mental disease, and some investigators have claimed considerable success by the clearing up of foci of infection in the teeth, tonsils, nasal sinuses, bowels, uterus, and so forth. Others, however, have found that the drastic operations often necessary have brought little benefit, and this subject must still be left undecided. It does seem, however, that some persons, who are possibly predisposed through inheritance or other factors, may finally break down as a result of some localized or general infection.

The effect of injury to the brain is another vexed question. Epilepsy follows severe head injury in about 4% of cases, though a greater percentage is given by some, and injury does at times seem to be the precipitating factor in causing definite psychoses, but very seldom—in 0.5% to 1.0%. The neuroses following trauma may be due to a diffuse change of the nerve cells, but in many cases there are complications in the way of litigation or claims for compensation following the injury, which may prove to be the effective cause of the neurosis that often clears up in a satisfactory manner when the claim is settled.

The effect of injury at birth or in the young child is often regarded by parents and others as the cause of subnormal intelligence, and authorities give figures varying from 1.0% to 17.5%, depending on the weight given to "neuropathic inheritance". This certainly seems to be a possible cause, but in such cases the degree of deficiency is generally gross

and is often complicated by paralysis. In very many cases with a history of difficult confinement and injury we have to consider their share in the causation of the associated mental defect as not proved.

Recently an attempt has been made to explain some cases of schizophrenia as due in part at least to the after-effects of head injury at birth or in early childhood which may have produced no symptoms at the time; but this must remain very speculative for the time being.

Alcohol is another causative factor which is difficult to assess, for even when alcoholic indulgence is present, it may be a symptom of nervous or mental ill-health rather than a cause. In Victoria last year 2.5% of admissions to mental hospitals were regarded as due to this cause, though in former years and in other countries somewhat larger figures were given. This, of course, excludes the undoubted mental inefficiency which results from excessive alcoholic indulgence and also the possible effects on offspring of alcoholism in the parents, which has already been dealt with.

In considering all these causes which act more or less directly on the brain, we see that they are, with the exception of syphilis, alcohol and senility, rather uncommon, though injury at birth and in early childhood is of some importance in the causation of mental deficiency and possibly in schizophrenia.

The degenerations of senility are increasing with the increased longevity of the population and, with the exception of provision for a care-free old age and generally improved health, it is difficult to see what can be done to avoid these troubles. Syphilis and alcohol fortunately seem to be on the decrease, owing to better education of the public, higher standards of living and more efficient public health, and one can hope that in the future they will decrease still further.

Injury at birth, which may act as a cause of trouble in later life, should be preventible by improvement in obstetrics and gynaecology with antenatal care of the mothers, and in this connexion the recent growth of antenatal clinics seems to be of considerable importance.

Attention to the general health of the community with the eradication of foci of infection, where such exist, and a more healthy mode of life, which would help to eliminate infection, must also be considered a definite possibility in the prevention of nervous and mental disorders.

The great increase in the amount of injury in adult life, due to the increased mechanization of civilization, and the resulting nervous ill-health, require consideration. It seems that this problem requires approach from several angles, amongst these being the avoidance of injury by the examination of those in charge of machines and machinery, with elimination of those who are unfit, for example, to drive a motor car, a thorough investigation of head injuries to detect possible causes of later trouble, and last, but not least, some readjustment of the regulations concerned with compensation to

avoid the prolonged anxiety and litigation which often arise. One often finds that patients suffering from neuroses following injuries which seem definitely due to psychological causes, are allowed to drift into a state of chronic invalidism by the payment of weekly compensation, whereas this might well have been avoided by the payment of a lump sum, or at any rate by some finality in treatment.

It seems that if we are to utilize to the full these possibilities of prevention, cooperation between many agencies is desirable, for example, the medical profession, nurses, social agencies, insurance companies, the clergy, and so forth; and, moreover, that this cooperation will be brought about only by a process of education of those concerned, so that they will be aware of the possibilities and unite to avoid them.

METROPOLITAN AND RURAL INCIDENCE AND DISTRIBUTION OF ACUTE RHEUMATISM AND RHEUMATIC HEART DISEASE IN NEW SOUTH WALES.

By KEMPSON MADDOX,

Marion Clare Reddall Scholar, University of Sydney, 1935-1936.

(From the Department of Medicine, University of Sydney.)

PART I.

THE GENERAL INCIDENCE OF CARDIAC RHEUMATISM IN NEW SOUTH WALES.

No comprehensive estimate has been attempted of the severity, distribution and clinical type assumed by cardiac rheumatism in New South Wales or the Commonwealth of Australia. To undertake such an inquiry adequately would require the united services of a large group of experienced investigators working probably for at least two years, as was done by the British Medical Association Committee which undertook the task in England in 1926-1928. The present review is merely an approximate guide to the situation, comprising only such information as a part-time worker can assemble in a few months' work.

Statistics of disease incidence are often based upon the proportion of patients suffering from the malady under consideration among the total admissions to hospital wards, or upon the total number of *post mortem* examinations in which the disease is revealed per year. Both criteria are open to considerable and obvious criticism, but yet form a convenient basis on which to compare figures from other countries. Harvey Sutton, employing the results of examination by school medical officers, analysed a series of 114 country children in New South Wales who had been reported for organic heart disease. Fifteen of these had congenital lesions, 99 had acquired (mostly mitral) disease. Only 16% of the

parents of these children knew that their offspring were so affected, which shows the important work done by the school medical service in this regard. A definite history of rheumatic fever was obtained in only 37% of the patients, and of chorea in 4%.

Laurence Hughes, considering a series of children admitted during two years to the Royal Alexandra Hospital for Children, Sydney, found that 90 first attacks and 128 recurrent attacks of rheumatic fever had appeared in 118 subjects.

Scheme of Investigation.

I have collected information under the following headings in an attempt to gain a composite conception of the frequency of the disease in New South Wales.

I. Clinical Incidence.

(a) The admission rate for rheumatic fever and chorea to the main public hospitals of Sydney over a period of ten years.

(b) The admission rate for rheumatic valvular disease to a large city hospital for ten years.

(c) The incidence rate of rheumatic valvular disease in town and country as discovered by the medical service of the Department of Education.

(d) The mortality statistics for valvular heart disease for New South Wales.

II. Post Mortem Incidence.

Post mortem evidence of the frequency of rheumatic disease in consecutive autopsies over a period of ten years at a large metropolitan hospital for adults and at a large children's hospital.

Clinical Incidence.

The Incidence of Hospital Admissions for Rheumatic Fever.—From figures kindly supplied by the superintendents of the hospitals represented I have collected information on the number of patients admitted to hospital for rheumatic disease (see Table I).

TABLE I.

Hospital.	Year.	Total Admissions.	Incidence of Acute Rheumatism. Percentage.
Royal Alexandra Hospital for Children ..	1926-1935	84,240	0.735
Royal Prince Alfred Hospital ..	1926-1935	88,865	0.35
Sydney Hospital ..	1926-1935	64,260	0.3
Royal North Shore Hospital ..	1926-1935	42,608	0.39
Saint Vincent's Hospital ..	1926-1935	43,113	0.27
Royal South Sydney Hospital ..	1926-1935	18,493	0.7
Western Suburbs Hospital ..	1928-1936	13,290	0.6

The figures in Table I may be compared with those of other countries, as set out in Table II.

The variability here is wide, and much depends on the proportion of medical beds to the whole in-patient accommodation, so that only very general conclusions are permissible.

The positions of the five hospitals in Sydney, together with the names of the surrounding suburbs from which the majority of their patients are drawn, are shown on Map I.

Admissions of Patients Suffering from Rheumatic Endocarditis to the Royal Prince Alfred Hospital.—The number of patients with rheumatic endocarditis admitted to the Royal Prince Alfred Hospital is shown in Table III.

TABLE III.

Year.	Lesions.	Number.	All Admissions.
1925-1935 (inclusive)	"Simple endocarditis" ..	55	
	Mitral disease ..	342	
	Mitral and aortic disease ..	27	
Total	424	88,865

If pericarditis and ulcerative endocarditis are omitted, the incidence of rheumatic valvular lesions was thus 0.47% of all admissions.

Anatomical Analysis.—Simple endocarditis (probably mitral) formed 0.006% of the total admissions for ten years. Mitral lesions formed 0.03% of the total admissions for ten years. Aortic (non-syphilitic) lesions formed 0.002% of the total admissions for ten years. Mitral and aortic lesions formed 0.003% of the total admissions for ten years.

Harrison and Levine's corresponding incidence for Boston was 3.89% among 15,932 admissions. Pibram states that the figures for Great Britain vary from 7% to 11.5%, and for Scandinavia from 2% to 5.5%.

White and Jones, in a series of 933 cases, give the anatomical distribution of the cardiac damage as follows: mitral involvement alone, 62%; aortic involvement alone, 5%; mitral and aortic involvement, 33%; pericarditis, 7%.

TABLE II.¹

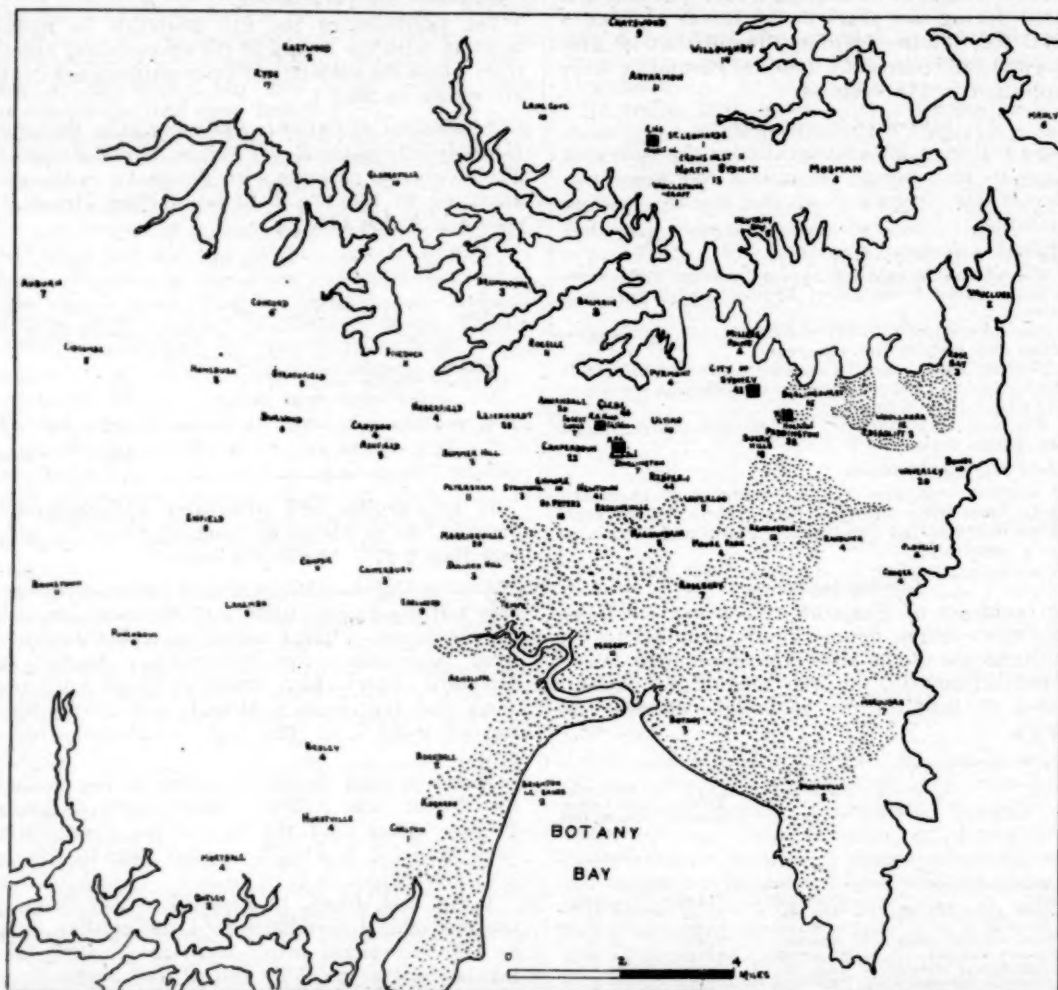
Author.	Country or Hospital.	Year.	Percentage Incidence of Rheumatic Fever and Chorea.	Admissions.
Clarke	Thirteen tropical countries	1923	0.15	All in-patients.
Newsholme	British Isles	1865-1893	8.4	Medical only.
Faulkner and White	Johannesburg Hospital	1921-1923	5.8	All in-patients.
	Glasgow Infirmary	1921-1923	4.74	All in-patients.
	San Francisco	1921-1923	3.75	All in-patients.
	Brigham Hospital, Boston	1914-1923	1.85	Medical only.
Pugh	Five London children's hospitals	1924	3.7	10,096.
Harrison and Levine	Johns Hopkins Hospital, Baltimore	1914-1922	0.73	
	London Hospital	1921-1923	2.7	All in-patients.
Faulkner and White	Bellevue Hospital, New York	1921-1923	1.5	All in-patients.
	Manila, Philippines	1921-1923	1.5	All in-patients.
	Charity Hospital, New Orleans	1921-1923	0.3	Medical admissions.

¹ For comprehensive list, see Faulkner and White's article.

Mortality Statistics.—The Government Statistician has been good enough to supply me with lists of the average age of death for males and females dying between 1928 and 1934 from "valvular disease of the heart", as shown in Table IV. Under the

may appear. The graphs supplied (Chart I) refer only to mitral, aortic and mitral and aortic valve disease combined.

The average age of death from mitral valve disease is approximately 61 years, but Wyckoff and Lingg



Map of Sydney, showing suburbs and their contribution of admissions from rheumatic fever to the Royal Alexandra Hospital for Children in a period of ten years. The dotted areas represent areas stated by the Water and Sewerage Board to contain underground water.

headings of "aortic valve disease", "endocarditis unspecified", "other or unspecified heart disease" and "pericarditis", lesions other than rheumatic

show that only 5% of cardiac deaths at this age are due to rheumatism. Poynton states that in England 25,000, or 40%, of all deaths each year

TABLE IV.

Area.	Average Annual Number of Deaths, 1928-1934, Inclusive.		All Heart Disease.		Specified Mitral and/or Aortic Valve Disease.			All Valvular Disease.		
	Male.	Female.	Male.	Female.	Male.	Female.	Percentage.	Male.	Female.	Percentage.
Metropolis ..	6,066	5,212	1,295	1,112	66	91	6.5	186	211	16.4
Rest of State ..	6,344	4,520	1,201	785	76	73	7.6	238	173	20.7
All State ..	12,410	9,732	2,496	1,897	142	164	7.0	424	384	18.0

from heart disease are due to rheumatism. Taking the deaths from all forms of valvular disease in New South Wales, which no doubt include instances of atheromatous valve distortion and of patients with regurgitant murmurs resulting from cardiac dilatation, the proportion of deaths from this type of heart disease is only 18%, or in the case of females, 20%.

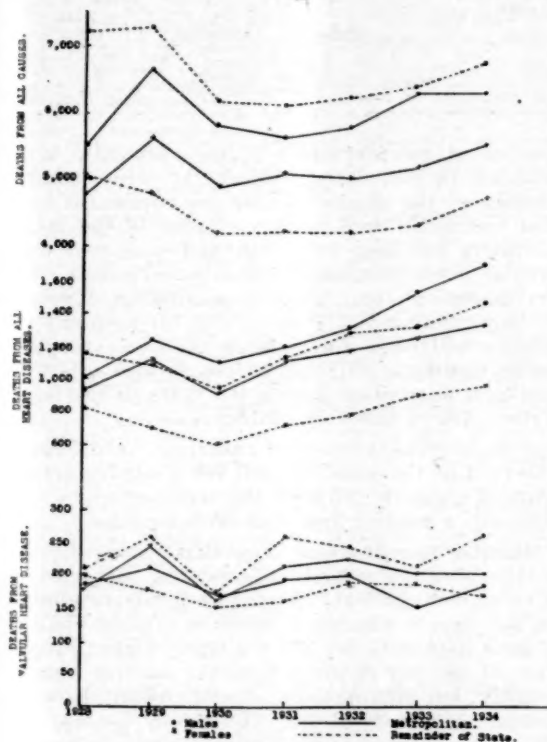


CHART I.

Comparison of deaths from all causes, deaths from all heart diseases, and deaths from valvular heart disease, 1928 to 1934 inclusive, in the metropolitan areas and in the remainder of the State. A general upward trend is observed in deaths from all heart diseases to which valvular heart disease appears to make little contribution. It is also to be seen that deaths from all heart diseases are rising sharply in the case of the male sex and more rapidly than deaths from all causes. The reason for the universal fall in 1930 is obscure.

Metropolitan Children Notified as Suffering or Suspected to be Suffering from Cardiac Affections (all Forms) at the Time of Routine School Medical Examination.—Only an approximate glimpse of the incidence of organic heart disease of rheumatic origin is given by school examination, since only freshly observed cases are recorded. Congenital heart disease is notified, and frequently the parents are informed when organic involvement is merely suspected. From similar statistics abroad, 11% to 13% of organic heart disease may be considered to be congenital.

The statistics prepared for and made available by the Principal Medical Officer, Department of Education, are, however, very comprehensive and form an interesting study (Table V).

TABLE V.

Year.	Total Examinations.	Notified for Heart Conditions.	Percentage.
1929	70,517	312	0.44
1930	54,150	221	0.40
1931	48,589	182	0.37
1932	40,693	130	0.32
1933	49,653	167	0.33
1934	41,407	152	0.36

It is convenient and interesting to note at this juncture the number of children with notifiable cardiac conditions found in the few schools scattered throughout the State which are attended solely by aboriginal children (Table VI).

TABLE VI.

Year.	Number of Examinations.	Notified for Heart Conditions.	Percentage.
1929-1934	766	3	0.39

Incidence in Country Schools.—As will appear later, my own estimate of the rural incidence of heart disease of rheumatic type is 0.6%, as compared with 0.4% for all country schools (average of six years' statistics). This latter figure is made up as follows: large country schools, 0.43%; small country schools, 0.37%.

This might suggest that closer contact and urbanization are factors operating more strongly in the larger schools, and so account for this small difference. The objection to this explanation is, however, that the figure for the metropolis is 0.34%, the lowest of the three. N. Dobbie has given the following incidence for 10,000 London school children: 0.5% at five years, 0.2% at seven years, and 0.7% at twelve years. Another factor worthy of consideration is to be found in the report of the Principal Medical Officer of the Department of Education, New South Wales, for 1919. He states that at five years of age the rural child is slightly heavier and taller than the child in the large country town, and that the latter is slightly heavier and taller than the metropolitan child. This holds for children of either sex. At fourteen years of age much the same proportion holds, except that while the rural child is still the heaviest, the metropolitan school child has an advantage of one pound over a child living in a large country town. Whether this has any relationship to resistance to infection, including the rheumatic virus, is unproven.

In 1934, of 215,404 children absent from school on account of sickness, 671 (0.3%) were suffering from acute rheumatism or chorea. The average period of absence of these children was 5.3 weeks. This figure (671) is probably as close an estimate as is at present available of the number of patients with acute rheumatism amongst school children in 1934, since these schools contain practically all children of the artisan and working classes of the State, which have been shown elsewhere to furnish

TABLE VII.

Author.	Country.	Number of Children Examined.	Percentage Incidence of Heart Defects.
Newman	England and Wales		0.8
Auden	Birmingham		1.4
Logan	Detroit, United States of America		0.5-0.6
Ritchie	Edinburgh	12,082	1.6
Ministry of Health Report	Scotland, 1924		0.5
Ministry of Health Report	New York, 1924	250,000	0.6
Ministry of Health Report	England, 1924	366,000	1.0
Present Enquiry	Rural New South Wales	62,991	0.4-0.6
Ministry of Health Report, No. 23, p. 64	Norway	(Compulsory notification)	0.8
Prinsing	Ulm	(Children between five to ten years)	0.61
Ministry of Health Report, No. 44, p. 42	Glasgow	(All ages excluding congenital)	0.6

nearly all instances of acute rheumatism. Some of the children would be suffering a relapse, and children of the pre-school age would be excluded. A comparison with other countries is seen in Table VII.

Post Mortem Incidence.

As a result of the perusal of the findings in 5,389 consecutive *post mortem* examinations performed at the Royal Prince Alfred Hospital, Sydney, I discovered that 85 examinations had revealed characteristic rheumatic damage in the heart, that is, 1.5% of the total autopsies. There were 53 males and 32 females in the series, and the lesions were distributed as follows: mitral valve, 47; mitral *plus* aortic disease, 12; aortic valve disease, 14; rheumatic pericarditis, 5; acute endocarditis, 7.

The total number in which mitral involvement was noted was 66 cases, exclusive of acute carditis, or in 1.2% of all examinations. Dr. Phyllis Anderson has been good enough to make a similar computation from the records of the Royal Alexandra Hospital for Children, Sydney. Eighteen of 1,050 autopsies revealed rheumatic carditis, an incidence of 1.7%. Harrison and Levine, examining the records of the Peter Bent Brigham Hospital, Boston, found their corresponding estimate of mitral stenosis to be 4.69%. Weiss and Davis, after a similar careful survey in the same city, gave an incidence of 4% in 5,215 consecutive necropsies (as frequent as cancer). Harrison and Levine, in New Orleans, reported an incidence of 0.23%; and Johns Hopkins Hospital, 1.3%. Burton Cleland (Adelaide) has recorded 116 instances of probable rheumatic infection in 3,000 consecutive *post mortem* examinations—3.8%. In rheumatic valve disease the mitral valve was affected in 76 (2.5% of all examinations), the aortic tricuspid valve was affected in 8, and the pericardium was adherent in 16.

The discovery of rheumatic heart disease at autopsy, when its presence has been unsuspected during life, is a rare occurrence. Hawking found in New York that in addition to the clinically recognized patients, 1.2% are discovered *post mortem* to have had rheumatic heart disease.

Summary.

An examination has been made of the hospital morbidity and mortality due to rheumatic carditis in New South Wales, in order to gain some con-

ception of the magnitude of the rheumatic heart problem in this State. Under the term "clinical incidence" the admission rate for rheumatic fever and rheumatic carditis to a number of the larger hospitals has been tabulated and compared with similar public hospitals from other countries. The percentage of total hospital admissions appeared to vary between 0.27% and 0.39% for hospitals for adults, and 0.7% for a large children's hospital, while rheumatic valvular lesions formed 0.47% of the total admissions during ten years to the Royal Prince Alfred Hospital, Sydney.

Post mortem evidence of rheumatic valve injury, observed at the same hospital for a similar period, showed a rate of 1.5% of the total autopsies. In Adelaide a rate of 3.8% has been recorded.

Routine examinations show that from 0.31% to 0.44% of State school children are suspected of cardiac derangement. A similar incidence applied in the case of aboriginal children. Large country schools appear to contain a slightly higher proportion of affected children than the smaller country schools; but metropolitan schools possibly have the lowest incidence of all, though in general the development of the children is slightly below the standard of the rural children. Rheumatism and chorea appear to cause 3% of school absences in this State.

Deaths from all valvular disease in New South Wales form 18% of the total cardiac deaths per year, that is, about one-half of the proportion of deaths from rheumatic heart disease in Great Britain.

Conclusions.

From a survey of these various findings, differing as they must in reliability, the general conclusion emerges that New South Wales is fortunate in occupying an intermediate position in regard to the incidence of cardiac rheumatism, since the general figure for the whole population of New South Wales, 0.3% to 0.6%, falls far short of the prevalence in the old world or northern United States of America, but is considerably more than is found in the tropics. The problem is of sufficient magnitude, however, to render all efforts towards prevention and towards the establishment of special facilities for convalescence a very real necessity.

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EPITHELIOMA OF THE LIP: GLANDULAR INVOLVEMENT AND THE "WAIT AND SEE" METHOD.

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Queensland.

BRIEF notes of seven cases of epithelioma of the lower lip are reported hereunder.

CASE I.—The patient was a male, aged sixty-four years, a drover. He was admitted to hospital on May 19, 1936. He had had a squamous-celled carcinoma of the lip removed seven months previously by surgical operation. At the time of examination he had a stony hard enlargement at the angle of the mandible on the right side. The pathological report stated that the glands were full of malignant deposits of squamous-celled epitheliomata.

CASE II.—The patient was a male, aged sixty-eight years. On June 16, 1933, he was treated with radium for squamous epithelioma of the lip. On August 29, 1933, there was a large indurated mass over the left mandible, extending into the neck, and the central area was deeply ulcerated. The condition of the neck was inoperable and the patient was sent to a hospital for incurables.

CASE III.—The patient was a male, aged thirty-eight years, a laundryman. He had suffered from an indurated,

slightly raised ulcer of the lower lip on the left side, for which he was treated with radium. Fourteen months later he noticed a swelling on the left lower side of the jaw, which was getting larger. The glands were partially removed and the pathological report confirmed the presence of squamous-celled epitheliomata.

CASE IV.—The patient, a male, aged thirty-four years, was a clerk. In January, 1934, he had developed a sore on his lower lip. This was treated with radium in November, 1934, and was healed. The patient reported on October 27, 1935, with a lump in the right side of his neck. The glands were excised. The pathological report stated that the glands were studded with secondary squamous-celled cancer.

CASE V.—The patient, a male, aged fifty-one years, had had an indolent ulcer on the lower lip treated with radium one year before he came for examination. Enlargement of the glands in the neck was noticed one month before the patient was seen. Partial excision was performed and radium inserted. According to the pathological report, the condition was one of squamous-celled carcinoma, which was now inoperable.

CASE VI.—The patient, a male, aged seventy-eight years, was a station hand. Twelve months before he was seen he had been treated with radium for carcinoma of the lip. The glands in his neck were now inoperable.

CASE VII.—The patient was a male, aged fifty-two years. Two years before examination he had had an epithelioma of the lip, which was treated by buried radium; no glands were palpable. Fourteen months after this treatment he developed a lump in the right submaxillary region. The glands of the neck were removed by surgical operation. The pathological report stated that the glands contained abundant malignant deposits.

In each of these cases there was a primary epithelioma of the lip with an absence of palpable glands of the neck. The treatment of the primary lesion was by surgical excision or by "interstitial radium". In no case was any treatment applied to the cervical glands; but the "wait and see" policy was adopted. As far as it was possible to ascertain by clinical examination, the primary site remained free from recurrence in all instances. I acted as a consultant in each of these cases weeks or months after the patients had reported for the first treatment, and I consider that the "wait and see" policy in relation to glandular involvement should be mentioned only to be condemned.

Most of these patients have come under my notice since Dr. Archie Aspinall warned practitioners in a letter in *THE MEDICAL JOURNAL OF AUSTRALIA* in June, 1934, of the dangers of the "wait and see" policy in regard to glandular involvement. Dr. Aspinall wrote:

The vital question is whether the "safety first" operation taught and practised by MacCormick and Maitland should be completely abandoned in favour of the more modern method of "wait and see", so far as glandular involvement is concerned.

My friend Dr. Molesworth followed Dr. Aspinall's warning with a letter to the journal challenging Dr. Aspinall's views, and at the same time made the strange request that nobody should enter into the argument, as he called it.

If excuse be needed for taking up this question, surely it is sufficient to quote the occurrence of glandular involvement in seven cases over a rela-

tively short period of time, following upon what is known as the "wait and see" method of treatment.

If Dr. Molesworth's letter represents considered scientific reasons for adopting the method of "wait and see", it is entirely unconvincing. Various statistical claims are made by Dr. Molesworth, but as they are unsupported by references they must be classed as less than hearsay evidence. For instance, the Regaud Clinic is credited with the statement that "only 20% of the cases without palpable glands subsequently showed involvement of the glands". This does not accord with a statement in a reprint of an article appearing in *The New Zealand Medical Journal* of April, 1933, sent to me by the courtesy of one of the authors, Dr. P. Clennel Fenwick, of Christchurch:

Professor Regaud's statistics show that many squamous-celled epitheliomas do not invade the glands early. In cancer of the lip more than 50% of the patients treated had no cancer of the glands.

Dr. Molesworth states:

Tumours of Grade 1 in Broders's classification only involve glands late, and that Grade 4 of Broders's classification are never cured whether gland dissection is carried out or not.

This is another example of an uncorroborated statement and means little. What does Dr. Molesworth mean by "late"; and would he tell us how many times he has seen a Grade 4 example of early epithelioma of the lip?

In Dr. Molesworth's article, read at the fifth Australian Cancer Conference in April, 1934, over fifty patients with epithelioma of the lip are reported as being treated by X rays. There are two recurrences due to failure to expose a sufficiently wide margin of healthy tissue. In only one case have the regional glands subsequently shown carcinomatous deposits. At first blush these results are very favourable and appear to support Dr. Molesworth's thesis; but we are not told how many of these cases represent five, four or even three-year so-called clinical cures. Then there is a further fallacy: Dr. Molesworth does not state how wide a margin he exposes to X radiation, and it is quite possible that he is quite unwittingly treating the glands simultaneously with the primary lesion—a purposeful practice followed in many clinics throughout the world.

Like Dr. Aspinall, I have a profound admiration for the part Dr. Molesworth has played in the development of X ray treatment of cancer in Australia. In the present instance, however, his writing is an illustration of the "harm good men may do". The danger is that practitioners, after reading an apparently authoritative statement, are apt to conclude that all they have to do to treat an early epithelioma of the lip is to cut a piece out or put in a few radium needles, when all will be well. The cases reported show that this happy event frequently fails to occur.

There is any amount of authoritative evidence for a more rational mode of treatment. According to the reprint already mentioned, Dr. Ellis Berven states that at the Radiumhemmet, Stockholm, the

glandular region is subjected to routine treatment by radium at a distance.

Last year Dr. Duhig and I visited Bundaberg and Maryborough on behalf of the Queensland Cancer Trust, and discussed the question of the treatment of epithelioma of the lip with the local practitioners. The advice given as to the best method of treatment of early epithelioma of the lip when patients could not be sent to a cancer clinic was that the primary growth should be removed with a wide margin, V-shaped incisions being avoided and the block of tissue being taken down to the chin. Subsequent treatment of the glandular area should be either by surgery or radiation. In all cases one or other treatment should be adopted.

The majority of practitioners are doing all that is necessary for patients; but unfortunately there are still a few who, after treating the primary lesion, on the occurrence of secondary gland involvement excise a portion of the affected gland and send it away for pathological investigation. A report of invasion with secondary cancerous deposits is frequently returned, and, by the time the unfortunate patient reaches a base hospital, he is beyond the hope of successful treatment.

Conclusion.

I strongly agree with the principle in Cade's statement:

There is a period of latency which may last from eight to twelve months, during which ordinary clinical methods of examination cannot reveal the presence of malignant cervical deposits.

Practitioners should be guided by the advice that the glandular areas should receive treatment in all cases of epithelioma of the lip.

THE ESTABLISHMENT OF A CENTRAL HEALTH AUTHORITY IN NEW SOUTH WALES.¹

By W. G. ARMSTRONG, M.B., Ch.M., D.P.H.

IN an illuminating article on "The Evolution of Public Health Administration in Australia", Dr. J. H. L. Cumpston, the Federal Director-General of Health, has aptly divided the history of public health activities in Australia into five periods.

I propose today to begin a review of the third period in so far as it affects this State.

It began in the year 1881 with a sharp outbreak of smallpox in Sydney, and was marked by the setting up of the first central public health authority in this State. A rather detailed account of the outbreak is necessary, because otherwise it is difficult to understand why the public health machine of the State should have been assembled in so haphazard a fashion, when there were better models available for

¹ Read at a meeting of the Section of Hygiene and Preventive Medicine of the New South Wales Branch of the British Medical Association on October 26, 1936.

imitation in England and even in some of the other Australian States.

As far as public health control on shore was concerned, New South Wales was considerably behind the adjoining State of Victoria, and had shown little aptitude for learning the lessons of the English cholera epidemic of 1831, or of the English *Public Health Acts* of 1848 and 1875. Cumpston, in the article referred to, accounts for this by the great influx into the southern Australian State of English immigrants upon the discovery of gold in the early fifties. These migrants brought with them knowledge and experience of the ravages of cholera and the great awakening of the public health conscience which that terrible scourge had caused in the Mother Country. They also brought with them into Victoria the seeds of two or three small outbreaks of smallpox.

All this served to instil and stimulate, among the rapidly growing population of Victoria, that acute interest in public health which was lacking in New South Wales; until 1882 there was, in fact, in New South Wales, no central health authority in existence, and any health control (apart from maritime quarantine) was of a petty type and exercised solely by the local authorities. These were the municipal corporations and the police.

The *Municipalities Act* of 1867 conferred some of the usual minor powers necessary for municipal care of the public health. There was no power inherent in any authority to compel the municipal councils to make by-laws, or even to enforce them when made.

The *Nuisances Prevention Act* of 1875 imposed on municipalities the duty of appointing inspectors of nuisances, but did not require any qualifications from these officers, who were almost always very poorly paid and entirely at the mercy of their councils. Under the *Towns Police Acts* of 1833-1853 certain nuisances could be dealt with by the police and the magistrates.

Fifty years after the arrival of Governor Arthur Phillip in Australia and the hoisting of the British flag in Sydney Cove, the first Port Health Officer for Port Jackson was appointed. This was Dr. John Dobie, Surgeon, R.N. He was appointed Health Officer to the Port of Sydney on December 11, 1838, by Sir George Gipps, whose dispatch announcing the appointment to Lord Glenelg at the Colonial Office set forth:

That the increase in the trade and shipping of the Port of Sydney, and the frequent recurrence of cases requiring vessels to be placed in quarantine, have been such as to cause of late much inconvenience for the want of an Officer of Health who should, as is customary in considerable harbours of all nations, visit every ship on its arrival, examine into the state of health of all on board, and be the organ of the Government in carrying the quarantine laws into effect.

From the want of a professional Health Officer, ships are frequently detained at the entrance of Port Jackson on the report of a subordinate officer of Customs, and delay frequently occurs in finding a medical officer to send down the Harbour, and when the services of one are engaged, they must of course be paid for by the local Government.

The salary of the position was fixed at £300 a year, with the right of private practice.

This dispatch was acknowledged by the Colonial Office in due course, and the appointment of Dr. Dobie approved; but he resigned the office after eleven months' tenure. He was succeeded on November 6, 1839, by Dr. Arthur Savage, Surgeon, R.N., who held the position of Health Officer to Port Jackson until 1852, when he in turn was succeeded by Dr. Haynes Gibbes Alleyne. The latter retired in July, 1882, only two months before his death.

This brings us to the time of the smallpox outbreak of 1881-1882, which is a very critical period of our history in all that concerns public health. That outbreak gave us in New South Wales our first central health authority, and established methods and institutions which, however imperfect, have become more or less permanent since.

To understand the changes which resulted in administration, it will be necessary to examine in some detail the course of the outbreak on its administrative side, touching lightly on its purely epidemiological phenomena. For these last the inquirer can be referred to Cumpston's "*History of Smallpox in Australia, 1788-1908*", which is very comprehensive. (Commonwealth Service Publications, Number 3.)

It must be understood that this was the most serious epidemic of smallpox which has ever occurred in Australia. It was almost entirely confined to the city and suburbs of Sydney, and lasted from May 23, 1881, to February 19, 1882. The number of persons known to have been attacked was 154, and the total number of deaths was 40, or 25.9% of those attacked. Only two cases (not included in the above total) were reported to have occurred outside Sydney; one was at Bega and one at Lismore. Both were reported and diagnosed by the local medical practitioners, and both were regarded as true smallpox by the Sydney authorities; but the nature of the Lismore case seems to have been doubtful.

Although the outbreak of 1881 was the most severe ever recorded in Australia, it was not the most extensive. In 1913 and the four subsequent years there was a widespread outbreak of mild smallpox (*variola minor*) in New South Wales. Some 2,400 persons were known to have been attacked, but the mortality was almost nil, and the human suffering and injury to public business were quite unimportant relatively to those of the epidemic of 1881.

The following facts relating to the organization under which the 1881 outbreak was fought and eventually stamped out are taken from the report of the Board of Health, which was presented to Parliament in 1883; from the official minutes of proceedings of the Board of Health; from the reports (2) of the Royal Commission upon the management of the quarantine station; and from the contemporary medical and non-medical Press, especially the *Australian Medical Gazette* and *The Sydney Morning Herald*.

It must be premised that during the first months of the outbreak no effective organization for dealing with such a crisis on land existed at all. No reliable statistics were kept, and the Port Health Officer of Port Jackson had the sole responsibility of dealing with the epidemic, with the aid of such temporary officers as he might obtain in the emergency, and with insufficient legal powers. Though the outbreak began on May 25, no statistics exist from which the probable source of infection can be traced in cases occurring before September 2, and even after that date the infection had become so widely diffused through the confusion and lack of control of the earlier weeks, that in 24 cases out of 113 it was impossible to trace the medium of infection.

In these circumstances it cannot be a matter for surprise that alarm and excitement among the population became acute. The official report states that in this condition of affairs the Government promptly determined to aim at the extermination of the disease from the colony. To us, examining the circumstances at this distance after the event, the promptitude of the Government action is not always very apparent. Nevertheless, when the authorities did get to work they acted with considerable resolution, and though many mistakes were made, the outbreak was stamped out in 271 days.

Clearly, the first and most urgent duty of the Government was to set up an authority qualified by knowledge and experience to know how to act, and fortified by the necessary legal powers to meet all emergencies that might arise. The kind of authority which seemed indicated was a board of health on which experienced medical men were well represented, together with certain lay officials. But no legal provision for the appointment of such an authority existed, and for some unknown reason the Government did not seek the necessary powers to appoint one until late in the course of the epidemic.

The first case of smallpox occurred on May 23, 1881, in Lower George Street. The source of its origin was, and still remains, entirely unknown. For twenty days thereafter there was no further development, after which four cases appeared simultaneously in four widely separated localities, and after another clear period of twenty days the disease appeared again in seven different localities.

A serious epidemic was perceived to be threatening, and on July 18 the first meeting took place at the Treasury, of which the quarantine department had always been regarded as a sub-branch, of a "Board of Advice" to assist in preventing the spread of smallpox.

This temporary board was appointed by virtue of a minute of the Colonial Treasurer dated July 11, 1881, and couched in the following terms:

I think it desirable that a number of gentlemen should be appointed a Board of Advice or Board of Health to advise with and assist the Government in cases of emergency, and incur expenditure without consulting the

Government in cases of urgent necessity to an amount not exceeding £200.

This improvised "Board of Advice" was composed of six medical men, including the Port Health Officer, and four prominent officials. One of the medical men, Dr. Alfred Roberts (later Sir Alfred Roberts), was, a little later (on September 13), constituted "Executive Member" of the "Board of Advice", and was appointed to carry into effect the views of the board, to direct and supervise the staff employed in dealing with the epidemic on shore, and to keep such records as he considered likely to be of use in the future. He was responsible for the efficient carrying out of the entire system by the various officers.

The "Board of Advice" was not endowed with powers for dealing with a "dangerous and alarming epidemic". There was no compulsory notification of smallpox, and many householders and some medical men were known to have concealed cases, and did so with impunity. The temporary board was legally impotent compulsorily to quarantine "contacts" or even persons suffering from diagnosed smallpox, and relied for their powers upon executive authority from the Government; in all matters apart from mere routine it submitted its decisions for the consideration and approval of the Colonial Treasurer (Minutes of the Board of Health, August 4, 1881).

In spite of its limitations, this board did some good work, and its Executive Member appears to have been both energetic and painstaking. A government medical staff was formed to visit, examine and prescribe for patients in quarantined houses. This staff was housed in a central position at Miller's Point and acted under the immediate direction of the Executive Member. An ambulance corps was organized for the removal of patients and "contacts" from infected houses (when the consent of the patients and "contacts" to removal could be obtained) and the disinfection of premises. A staff of nurses was engaged. A force of special constables was enlisted to guard quarantined houses.

For some months after the beginning of the epidemic the Quarantine Station at North Head was the only place to which patients were conveyed for treatment, the accommodation consisting of the hulk *Faraway*, fitted as a hospital ship for male patients, and, on shore, weatherboard pavilions in separate enclosures for female patients, convalescents and persons from infected houses ("contacts"). There were four resident medical officers at the Quarantine Station, and the entire station was under the immediate control of the Port Health Officer.

After the epidemic had run its course for nearly seven months, an act entitled the *Infectious Diseases Supervision Act* was passed through Parliament and became law on December 20, 1881. This act gave power to the Governor-in-Council to appoint a board of health of not less than six persons. It required, under heavy penalties in case

of default, the notification by all medical men and householders of any case of smallpox or any eruptive fever which might reasonably be supposed to be smallpox. It constituted the Board of Health, appointed under the act, the authority to carry out on shore, under the orders of the Governor, the powers of isolation and all other powers already conferred on the Port Health Officer in respect of shipping by the second section of the *Quarantine Act* of 1832.

The personnel of the first Board of Health in New South Wales was as follows: the Mayor of Sydney, the Under Secretary for Finance and Trade, the Inspector-General of Police, the Health Officer, Dr. (afterwards Sir) G. K. Mackellar, Dr. (afterwards Sir) H. N. MacLaurin, Dr. (afterwards Sir) Alfred Roberts, Dr. George Fortescue and Dr. A. A. West. The board was gazetted on January 5, 1882.

Dr. Alfred Roberts continued to act as Executive Member as long as the epidemic lasted, but the temporary "Board of Advice" at once ceased to exist, and, with the assured position of the Board of Health, the enlarged powers under the new act, and the provision of the Coast Hospital and the sanatorium for the treatment of the sick and for isolation purposes, the management of the remainder of the epidemic became more satisfactory and less onerous, and the public excitement rapidly subsided.

Unfortunately, the management of the outbreak in the early months was unsatisfactory in many ways, and many serious scandals occurred. To quieten the public excitement it was found necessary to appoint a Royal Commission to inquire into the management of the Quarantine Station and the hulk *Faraway*. The commission included three prominent medical men: Dr. P. Sydney Jones (afterwards Sir Philip S. Jones), Dr. H. N. MacLaurin (afterwards Sir Norman MacLaurin), Dr. F. N. Manning; also Mr. Francis Hixson (President of the Marine Board) and Mr. J. R. Street (Vice-President of the Sydney Infirmary), who acted as president. The witnesses examined numbered forty-seven, and included several medical men, nurses, attendants, police, patients and "contacts".

The commission began its sittings on September 21, 1881, and reported on January 11, 1882. A second report was made by the same commission on March 8, 1882, slightly extending the scope of the first inquiry.

The report of the Royal Commission disclosed a number of abuses and was very severe upon several individuals. The following are some of the findings:

The staff at the Quarantine Station was small, the supply of clothing and stores insufficient, and the general organization in many respects unsuited to the occasion. Under the circumstances the immediate transfer thither of the patients and their friends at the beginning of the outbreak appears somewhat hasty and unadvisable, and to have led to the mixing of persons afflicted with smallpox with others who were free from the disease. . . . The order issued from the Treasury to quarantine two medical men who had attended smallpox patients in the early stages of the epidemic was a grave mistake, and

we are further of opinion that it was unwise to employ these gentlemen in the medical charge of the Quarantine Station.

On two occasions patients were taken (from Sydney) to the Quarantine Ground in an open boat. . . . we are of the opinion that the conveyance, very early on a winter morning, of sick persons in an open boat in a leaky condition was most improper.

The Quarantine Station is divided into two parts, called respectively "Healthy Ground" and the "Hospital Enclosure", to which latter sick women and children were sent. Many of the numerous complaints respecting the condition and management of both these divisions were frivolous, while a number of them were grossly exaggerated.

There were, however, several really serious grounds of complaint,

. . . and among the chief was the deficiency of necessary articles which could not be immediately procured; and it is clear that the lay Superintendent of the Station, with many things in his store which were in demand, frequently refused to issue them, and generally displayed a niggardly spirit in supplying the various wants, thus disregarding the instructions of the Government to treat the people at the Station with the greatest liberality.

The food was at all times plentiful and generally good and wholesome.

The issue of stimulants was extremely liberal throughout. . . . it has not been shown that this liberality was abused.

The people in the "Healthy Ground" would have been more comfortable and contented had the medical officer who was in charge understood and acted upon the responsibilities of his position, and displayed greater tact and more power of organization. . . .

We regret to be obliged to state that another medical officer, who was in medical charge of the sick women and children in the "Hospital Enclosure", does not appear to have discharged his duties towards the patients under his care in a manner which might have been expected from a gentleman in his position. He seldom or never went into the sick wards, and left the treatment of the patients almost entirely to the nurses, and did not think it necessary to take their temperature, to feel their pulses, or to take other steps which should have been a portion of his duty as medical officer.

With regard to the general management of the "Hospital Enclosure", it is shown that a number of coffins sent from Sydney were allowed to remain inside the fence, exposed to the view of the patients, which we consider to have been highly reprehensible and cruel in its effects upon the feelings of the sick women and children. . . . On more than one occasion patients brought to the enclosure, instead of being carried at once into the ward, were kept waiting at the gate for a considerable time in close proximity to these coffins. These matters were under the control of the medical officer in charge (of the Hospital Enclosure).

(These two medical men in charge of the "Healthy Ground" and the "Hospital Enclosure" were those who were forcibly quarantined because they had attended smallpox patients on shore, and afterwards, on request, they consented, unwillingly, to act as medical officers to the quarantined people.)

The report continues:

The state of affairs on board the *Faraway* appears to have been in every way deplorable. . . . Some of the patients appear to have been left without nursing; to have been allowed to wander about and injure themselves at night, and even to go on deck naked in their delirium; to lie for days in their evacuations; to be without any medical comforts and even without any food except such as was prepared for them by the voluntary and unskilled efforts of the convalescent patients. . . .

The officer who was in (medical) charge of the *Faraway* was not a properly qualified medical man (though he was a "qualified assistant" of the Society of Apothecaries), and was sent there by the Health Officer some time prior to the outbreak of smallpox.

The previous services rendered by him in similar situations had satisfied the Health Officer that he was sufficiently competent for the position, and in view of the difficulty of obtaining a duly qualified practitioner to undertake the duty, he was allowed to remain until it was reported that he was drinking, when steps were taken to provide a substitute.

It is to be regretted that in the frequent visits paid by the Health Officer to the Quarantine Station he did not think it necessary to obtain information from other sources than Mr. Carroll (the Superintendent of the Quarantine Station), who was in our opinion ill-qualified to judge of the actual state of affairs in the "Hospital Enclosure" and on board the *Faraway*, and was besides not on good terms with the medical officers in charge. Dr. Alleyne (the Health Officer) appears to have placed too much reliance on Mr. Carroll's reports, and to have had no personal communication with the medical officers. He gives as a reason for the line of conduct he pursued that at first his boatmen were not thoroughly vaccinated, and that he was fearful of being himself the means of spreading the disease in town.

On the whole, the report of the commission is a scathing indictment of the whole system of quarantine which prevailed at that time, and its publication cast a good deal of discredit on the government of the day.

The cost of the visitation of smallpox to the State was £84,143, of which £9,912 represented amounts paid by the Government for compensation to persons who were compulsorily detained in quarantine (*New South Wales Parliamentary Votes and Proceedings*, Volume II, 1883). The two medical men who were compulsorily quarantined and afterwards acted as medical officers, received £2,500 and £1,000 respectively as compensation.

It must be evident to those who have followed this brief account that a board of health appointed in the circumstances and in the manner detailed could not be very effective in dealing with the complicated and far-reaching problems of the public health control of a modern State. It was no doubt very useful for the purpose for which it was really intended, namely, to relieve the Government, then and in future, of the reproach which it had incurred in dealing with the outbreak, a recurrence of which might easily be anticipated in future; and this apparently was the main concern of the Government at that time.

I hope on a future occasion to show how the Board of Health subsequently dealt with the problems which it had to face, and how it became clothed with some of the powers which are essential to its value to the State.

The Port Health Officer, who had nominally the control of the measures for dealing with the outbreak, was a most unfortunate victim of circumstances. In the first place, he had very limited legal powers on shore and had to seek authority for every act that was not purely of a routine nature from the lay officials of the department under whose control he acted. He was overburdened with duties. He had the utmost difficulty in procuring

temporary medical officers to act as his subordinates, owing to the public panic fear of smallpox which prevailed, and had to be content with such assistants as he was able to procure. He was absent from duty on sick leave at the beginning of the epidemic, and though he hurried back to duty before the expiry of his leave, arrangements had already been made and instructions issued in his absence which conditioned the management of the epidemic during its early weeks, and which evidently tied the Port Health Officer's hands in respect of many important matters. Finally, he was an old man, and almost certainly in poor health, for he died suddenly at sixty-eight years of age, a few months after the epidemic of smallpox terminated.

A careful perusal of the evidence given before the Royal Commission leads one to the conclusion that most of the scandals which arose during the early weeks of the epidemic, would have been avoided had the Port Health Officer been in control when the outbreak declared itself.

It is true one cannot acquit him of failure to make himself properly conversant with the doings of his medical subordinates, but it is necessary to remember that the general belief in those days was that it was unsafe for the community for a doctor to visit a smallpox hospital and afterwards mix with the public, no matter how thoroughly he might have freed himself from infection in the meantime; and that Dr. Alleyne himself held this belief he admitted not only to the Royal Commission on the smallpox outbreak of 1881, but also twenty-eight years earlier, when he was giving evidence before a Select Committee of the Legislative Council on the Management of Quarantine, in 1853.

As soon as the disclosure of the abuses at the Quarantine Station and on board the *Faraway* had been made, the Port Health Officer appears to have taken appropriate action to remedy them and to obtain the appointment of a resident medical superintendent; by the middle of August, 1881, there was evidence that all departments of the Quarantine Station were being conducted satisfactorily.

In one direction at least most commendable activity and energy were shown. As part of its scheme for stamping out the existing outbreak and providing means by which epidemics might be efficiently dealt with in future, the Government determined to establish a complete and isolated hospital at a sufficient distance from the metropolis to ensure safety and confidence.

For this purpose, five hundred acres of unalienated and unoccupied land were selected at Little Bay, about nine miles south of the Sydney Post Office, and situated on the foreshores of the Pacific Ocean. This was enclosed with a galvanized iron fence, and the Government Architect was instructed to erect upon it with the utmost expedition a pavilion hospital, constructed of wood and galvanized iron, containing accommodation for 106

beds for patients, together with all appurtenances for medical, nursing and domestic staffs.

The buildings were constructed of an outer skin of galvanized corrugated iron and an inner lining of wood, with an interspace of five inches, which was utilized for a continuous current of ventilating air.

No time was lost in building this hospital, and although I have been unable to ascertain the exact date of opening, it is clear that the Coast Hospital was receiving patients by January 9, 1882, because the Board of Health reported on that day that the Quarantine Station at North Head had been freed of smallpox patients and cleansed and disinfected to receive the passengers and crew of the quarantined steamer *Garonne*.

An area of ground eleven acres in extent, situated within the hospital enclosure, was separately fenced off and called the "Sanatorium". It contained wooden pavilions capable of housing forty-two inmates, with quarters for a small staff and all the necessary appurtenances. It was used during the epidemic from early in September, 1881 (some months before the Coast Hospital itself was ready for patients), for housing "contacts", that is, inmates of infected houses who were not themselves suffering from smallpox, whenever these could be persuaded to go there.

Dr. J. A. Beattie was installed as the first medical superintendent of the Coast Hospital. During the remainder of the epidemic, fifty-seven smallpox patients were treated in the Coast Hospital, and one hundred and thirty-seven "contacts" were housed in the sanatorium.

Although hurriedly and roughly constructed of what are considered to be very perishable materials, the Coast Hospital proved quite invaluable. The excellence of the site has never been seriously disputed—there are probably few superior to it in the world—and with the improvements which time has brought about in communications, especially in swift and smooth mechanical conveyances, the one drawback from which it originally suffered, namely, the distance from the city, has been minimized. Over and over again, in other less serious outbreaks of smallpox, in the typhoid outbreaks of the eighties and early nineties, in the plague outbreaks at the beginning of this century, in the ghastly influenza pandemic of 1919, it has proved itself invaluable to Sydney. Even in the relatively quiet times between these emergencies it has always been a refuge to the sick poor and to the harassed medical profession of a great city, for beds could always be found, however great the rush, "at the Coast".

Gradually the flimsy wood and iron buildings have been and are still being replaced with materials more enduring, and the Coast Hospital, or rather the Prince Henry Hospital, as it has been lately rather unnecessarily renamed, now has over 750 beds and is the largest hospital in New South Wales, possessing accommodation for infectious, medical and surgical cases.

Reports of Cases.

VARICELLA AND HERPES ZOSTER.

By ALAN H. FINGER, M.B., B.S. (Melbourne),
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Northfield, South Australia.

DURING July, 1936, an outbreak of varicella, several features of which make it worth recording, occurred within the Metropolitan Infectious Diseases Hospital, Northfield, South Australia.

During the six days, July 1 to 5, six small girls, convalescent from diphtheria, developed attacks of varicella with preliminary fever followed by a typical rash on body and head. Three medical officers agreed on this diagnosis.

All the patients affected had been isolated, along with some twenty others, in two wards to which they had all been transferred on June 10 to 14. They had all been in hospital for more than a fortnight before this transfer and had not been in contact with any chickenpox. A careful inquiry showed that there was no possibility of any infection by a third person.

On June 19, a girl, aged ten years, who had been transferred from the Adelaide Children's Hospital convalescent from chorea and with very mild faucial diphtheria, developed a typical herpes zoster rash over the distribution of the lateral branch of the sixth left intercostal nerve. This was treated with pituitrin, one cubic centimetre, on three alternate days, and subsided rapidly. The crusts were still present on July 7. This girl had been in the same ward as those affected with chickenpox, and all had been up and playing together. As far as is known, the other children did not touch the lesions of the herpes zoster patient.

It would appear that the six patients were infected, within the usual incubation period of chickenpox, from the patient with herpes zoster.

One further observation adds more interest to this outbreak. To the ward containing all the above patients two other children were admitted who had come to the hospital, one with nasal diphtheria and definite chickenpox of about four days' duration, the other, a boy with diphtheria who had developed typical chickenpox on the second day after admission. Their transfer to the ward took place on July 3. Their chickenpox lesions cleared up without any special features, but on July 18, fifteen days later, each developed another crop of typical chickenpox lesions, preceded by mild febrile upset and running a typical course.

Reviews.

ENDOCRINOLOGY.

THE "Recent Advances" series is now well established in favour, the volumes comprising it being known as compact and reliable monographs; and A. T. Cameron's third edition of the volume on endocrinology maintains its position in the forefront of the series.¹ The author very properly regards the foundation of the subject as being in his own field of biochemistry, and while he writes simply and presents his material in a readily assimilable

¹ "Recent Advances in Endocrinology", by A. T. Cameron, M.A., D.Sc., F.I.C., F.R.C.S.; Third Edition; 1936. London: J. and A. Churchill Limited. Demy 8vo, pp. 467, with illustrations. Price: 15s. net.

form, he aims at giving the reader the gist of the recent experimental and chemical research. It may disappoint some readers to find at the end of an extended description of the various active principles of the anterior part of the pituitary a brief paragraph only on the clinical results obtained from concentrated extracts of this gland complex, and, further, to read that the author believes that there is no evidence that the oral use of these preparations produces any effect at all. But this is as it should be. Accurate knowledge of the endocrines can come only from experimental work and chemical analysis and synthesis; only on this sound basis can clinical application be properly made. Cameron has in this, as in the earlier editions, kept a good balance between the various endocrine glands. He has resisted any temptation to sacrifice space on, say, the adrenals, to subjects like the sex hormones and the pituitary, which are rather more in the popular eye at the moment; and thus accurate and full information is available over the whole field. The recent work of Rowntree and others on the pineal and thymus is summarized with sufficient detail, and brief sections are even given on the more nebulous subjects of the alleged "heart hormone", the blood pressure depressants so widely advertised to the profession, and the insulinotropic extract of the duodenum. The author has introduced a large amount of new matter into this edition, even though it is only eighteen months since the second edition appeared; and this has involved considerable rewriting. The book is well up to date, sound and authoritative, and can be strongly recommended to all who wish to have a modern book on endocrines that is not too elaborate for the busy man to read. An excellent feature of the book is the quite elaborate bibliography; there are in all references to nearly 1,500 books and articles given at the ends of the various chapters. This evidence of the colossal contemporary literature should surely convince any reader that in using endocrine products in actual therapeutic practice, the wise course is first to obtain accurate information as to the action of the substance in question; only then can he attempt to select a reliable preparation. Too much endocrine prescribing is done from the seductive blotting pad literature, which must make the letter-carrier's life such a burden, and it is right that the light which is beginning to shine into the dark corners of endocrine medicine should cast its beams also into the mind of the clinician, who, it must be admitted, tends still to be an empiric in therapeutics. This book maintains the standard of previous editions and should help to bridge the gulf between the laboratory and the patient.

RESPIRATORY DISEASES AND THEIR TREATMENT.

It may seem curious for a pathologist and a clinician to collaborate in writing a practical text-book on the treatment of respiratory diseases, but, seeing that all treatment should be based upon a sound knowledge of pathology, the example might be followed with advantage by other writers. Certainly A. L. Punch and F. A. Knott, seeing, as they point out in their preface, modern medicine from widely different viewpoints, have produced an excellent book.¹ They have set out to collect all the relevant information about diseases of the respiratory system which will help the practitioner to select and carry out in full detail all treatment but the most highly technical. Their book is meant to appeal to the general practitioner and the recently graduated hospital resident. Perhaps in parts it is rather highly technical for all who will read it, but it is essentially practical. Major surgery is dealt with only in so far as the correct indications for the more serious and elaborate procedures are concerned, space being thus saved for purposes that are in the present instance more useful. Perhaps it may be questioned if blood transfusion needs a detailed description in a book

of this kind, and if its place might not be better taken by some additional detail about hay fever and asthma. Incidentally it may be remarked that kapok, recommended by all text-books written in the British Isles as a suitable substitute for other bedding, is in itself a frequent source of irritation in Australia. The authors wisely attract the reader's attention at the very outset, for their first chapter is a practical and useful one on the catarrhal cold and influenza; other common diseases dealt with are laryngitis and whooping cough. Bronchiectasis receives adequate handling and is illustrated, as the whole book is, by a series of most excellent radiographic pictures. The general practitioner will be relieved to read the authors' opinion that postural drainage is as useful as the more highly technical and difficult bronchoscopic method. All the advice and methods given in the treatment of the simple and purulent pleural effusions are sound and helpful, with the backing of personal experience behind them, as may be seen when attention is drawn to the curiously rapid subsidence of primary pleural effusions in some cases. It is particularly pleasing to read the sound advice in the section on the treatment of pulmonary tuberculosis in the home and in a sanatorium. The importance of taking the patient's temperament into consideration, the difficulties that arise with patients' friends, the necessity of having regard to the economic position, and the question of suitable employment, all these are very sensibly dealt with. We are in personal agreement with the writers in advising that no individual dose of gold preparations, "Sanocrysin" and the like, should be greater than 0.3 gramme. Their personal experience leads them to advise that once it has been decided to terminate treatment by artificial pneumothorax, it is better to do so abruptly; there seems, however, good reason to believe that pleural effusions may occur unless the lung be decompressed gradually. Further details of the intranasal and intrapharyngeal technique of lipiodol injection might perhaps be given.

This book, in a compass of less than 300 pages, gives practically all that any physician will need in handling patients suffering from respiratory disease. Its format resembles the "Recent Advances" series, produced by the same publishers, and it is a worthy member of that growing family of reliable and attractive monographs that have done so much to lighten the labours of the doctor who remains a student.

ELEMENTARY PATHOLOGY.

A WELL-ILLUSTRATED note-book on the rudiments of pathology has been compiled by Keith S. Thompson.¹ He points out that it is not intended as a text-book; this is apparent, for there are only 70 odd pages of letterpress. The little book is interleaved so that students may supplement the outlines of the subject by amplifications culled from lectures and practical demonstrations. The value of this method is doubtful, since it is surely better for students to use a larger reference book, which, while not too large to present the elements of the subject clearly, is full enough to be valuable for reference. The idea that the neophyte in pathology works his own passage is excellent; but it is doubtful whether he will do it any more successfully by this method. However, the very brief outlines are clear, though obviously insufficient in themselves even as an adequate introduction to the subject, and the illustrations are admirable. The book is excellently produced, and if a series of practical demonstrations were arranged round this nucleus, no doubt it would be found of value. We are in agreement with the author when he states in his preface that "the majority of students spend too much time in lectures in writing notes".

¹ "Modern Treatment of Diseases of the Respiratory System", by A. L. Punch, M.B., M.R.C.P., and F. A. Knott, M.D., M.R.C.P., D.P.H.; 1936. London: J. and A. Churchill Limited. Demy 8vo, pp. 303, with illustrations. Price: 15s. net.

¹ "Elementary Pathology: An Introduction to the Process of Disease", by K. S. Thompson; 1936. London: H. K. Lewis and Company Limited. Crown 4to, pp. 88, with illustrations. Price: 10s. 6d. net.

The Medical Journal of Australia

SATURDAY, MARCH 13, 1937.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

PREVENTIVE MEDICINE AND NUTRITION.

NUTRITION is at present such a fashionable subject that it is mentioned in almost all journals, scientific, pseudo-scientific and popular. Much that is valuable has appeared in print, but on the other hand faddists and ignorant persons have not been idle, and there is a danger that a gullible public may have thrust upon it doctrines that are valueless, if not actually harmful. Some useful information has been given to the community from time to time—the supplement to *The Courier-Mail* in Brisbane, sponsored by the Queensland Branch of the British Medical Association, dealing with many aspects of nutrition, is propaganda of the best type. In this journal the attention of medical practitioners has been drawn to the publications of the League of Nations, and particularly to the reports of the Mixed Committee on the Problem of Nutrition. In Great Britain the Ministry of Health has been active, and it is well that Australian practitioners should know what is being done in the Old Country in this important matter.

In his annual report for 1935, published in 1936 and received in January, 1937, Dr. Arthur S. MacNalty, Chief Medical Officer of the Ministry

of Health, points out that in 1931 the Minister of Health appointed an Advisory Committee on Nutrition and that this committee was reconstituted in 1935 "to inquire into the facts, quantitative and qualitative, in relation to the diet of the people, and to report as to any changes therein which appear desirable in the light of modern advances in the knowledge of nutrition". At the same time it is interesting to learn that so far back as 1863 the Lords of Her Majesty's Council, then the central health authority, had an inquiry made into the lowest fed populations. In the course of this investigation several hundreds of households in England and Wales, Scotland and Ireland were visited. So much has been learned since 1863 that this inquiry has, as Dr. MacNalty points out, little more than historical interest. The Advisory Committee in Great Britain has prepared a memorandum on the nutritive value of milk. In this memorandum emphasis is laid on milk as a food which contains in a form ready for utilization by the body practically all the materials essential for growth and the maintenance of life. It should form a larger proportion than it does at present, of the diet of children, of adolescents and of expectant mothers. The present consumption of liquid milk in Great Britain is somewhere in the region of 0.4 pint per head per day; in many families it is much less. From the experimental evidence it is held that an increase in the average consumption of milk to about one pint a day would result in the improvement of the general health of the community, especially of children, in whom it would secure better bone formation and improvement in stature and physique. It would diminish the incidence of disease, including rickets, and increase resistance to dental caries. The desirable amount of milk for children is thought to be between one and two pints. Inquiries have been initiated by the Ministry of Health with the object of ascertaining the nature of the diets and the state of nutrition of the people. Dietary studies have been carried out on 69 working class families in Newcastle; and another study has been started in the West Riding of Yorkshire. The study has so far included the diets of 190 families; the results, however, are not yet available. Tests of nutritional efficiency have been made in several

centres. The dynamometer tests of physical efficiency have been used; equilibrium and coordination have been tested by a modification of Romberg's method; hæmoglobin determinations have been made; height and weight have been recorded. The statistical analysis of the dietary studies and of the tests of nutritional efficiency will be carried out by the Statistical Department of the London School of Hygiene. Milk investigations are also being carried out with the twofold object of testing the effect of milk supplements to the diet of school children on their rate of growth and state of health, and of comparing the nutritive value of raw and pasteurized milk.

It will be noted that all these investigations are intricate and time-consuming; and we are told that, pending the publication of their results, health and education authorities are bringing the principles of proper nutrition before the public. Reference is also made to a report from the City of Bristol Public Hospital Services, published last year in *The Lancet*, in which it is claimed that an increase in "protective foods" (eggs, milk, butter, fruit and vegetables) has been of value in reducing intestinal infection in an institution. In giving some details of this investigation, Dr. MacNalty shows wisdom and caution. He states with emphasis that while adequate nutrition is of importance in maintaining bodily resistance, it cannot be held to be in any way a substitute for the necessary control and precautions desirable in guarding against sources of infection and in dealing with an outbreak of infectious disease. In commending this statement as suitable for dissemination throughout the community, we would call to mind Robert Hutchison's caution against the "undue optimism which believes that a great improvement in the public health can be brought about by altering the national diet".

Current Comment.

CUTANEOUS HYPERALGESIA.

THE latest of the published researches of Sir Thomas Lewis concerns a subject that lends itself well to a simple yet detailed investigation and is of undoubted clinical importance. Lewis's energies for a number of years have been directed towards

the elucidation of some of the many unsolved problems concerned with the nervous and vascular reactions of the superficial tissues of the body, and the present inquiry elaborates work begun some years ago.¹ The first point of inquiry was the cause of the curious spreading tenderness that has been observed following a local injury to the skin. If a small area of skin is powerfully and painfully stimulated by a faradic current it is not uncommon to find a definitely larger area of tenderness, which spreads irregularly for a variable period of time. This was originally thought to be due to the diffusion of some pain-producing substance by circulatory channels; but careful investigation after the production of a local ischæmia, and also after the production of a local anæsthesia, has convinced the author that the phenomenon is a local nervous and not purely a local vascular one. After mechanical injury, such as that produced by the crushing of a minute fold of skin in fine forceps, a similar result is obtained; but in this case the experiments suggest that the stimulus is a chemical one—a substance released from the damaged skin. Hyperalgesia may also be produced by faradizing the cutaneous nerve trunks either through the skin or directly by inserting a fine electrode; this is not affected by blocking the nerve proximally by a local anæsthetic, but distal blocking prevents its occurrence. An interesting confirmatory experiment was performed by the author by stimulating the wall of his maxillary antrum, a procedure facilitated by a drainage operation that had been carried out twenty years before on his antrum. He was able to reproduce the local tenderness over the distribution of the second division of the fifth cranial nerve, a sensation familiar to most of us during an attack of sinusitis in the course of a common cold.

A further development of the observation made on cutaneous nerves was found when one of the digital nerves was stimulated; hyperæsthesia appeared over the whole area of skin supplied by the ulnar nerve, of which the nerve in question was a radicle.

Lewis thinks that by whatever means this spreading hyperalgesia is produced, its mechanism is the same, this being in general of nervous nature and in particular operating through an arrangement of branching axones. The close reasoning behind this conclusion need not be reproduced here; it is the conclusion itself that is of greatest interest, for Lewis's hypothesis is that this system of nerves is not sensory nor yet sympathetic. He invokes a new system of cutaneous nerve axones, which he calls "nocifensor" nerves, and postulates that these nerves are responsible for a number of different reactions, which are brought about by chemical substances from and into the skin. Such phenomena as hyperalgesia, itching and vascular reactions would then be supposed to be governed by the local influence of such nerve fibres following injuries of different kinds, and would appear in the light of a defensive mechanism designed to guard against

¹ *Clinical Science Incorporating Heart*, December 9, 1936.

further injury. The work on urticaria of nervous origin recently referred to in these columns may be linked up with this hypothesis. These observations are not of the kind that lead immediately to clinical results; but anyone who is interested in the subject of pain and its mechanism (and who is not?) will hope that it may lead to a clearer understanding of the defence mechanisms of the body. After all, it is probable that the early researches into the nature of inflammation must have appeared academic and dull to the practitioners of that day; but what a harvest has been reaped.

CHOLINE ESTERASE ACTIVITY IN DISEASE.

THE remarkable effects of physostigmine and its ally, prostigmin, upon muscle power in *myasthenia gravis* is held to be due to an interference with the excessive destruction of choline at the myoneural junctions in this disease. Dale, to whom we are indebted for a description of the intense muscarine-like effect of acetylcholine at the parasympathetic terminations, considers that the brief duration of effect in these situations is due to its rapid conversion into choline and acetic acid by an esterase in the blood. Engelhardt and Loevi demonstrated the strong inhibitory effect of eserine upon this process, which is reversible.

Wide variations occur in the choline esterase content of normal sera, and in *Myasthenia gravis* contradictory results have been obtained. Murray McGeorge, working in the laboratories of the British Postgraduate Medical School, has attempted recently to determine whether any correlation exists between this concentration and the clinical states of the patients, particularly in *myasthenia gravis*.¹

Sera from 132 patients were investigated. The subjects suffered from a wide variety of diseases, both systemic and local. No correlation was forthcoming between the choline esterase content of the serum and the patient's clinical condition, pulse rate, temperature, state of nutrition, age, sex, mental or physical constitution. No variations agreed with change for better or worse in the patient's clinical condition. Eight patients suffering from hyperthyroidism were investigated before and after operation, with remarkably constant results for the individual.

Three patients with *myasthenia gravis* showed serum esterase activity of 1.9, 2.6 and 4.4 units; that is, well within the normal range. An injection of 3.0 milligrammes of prostigmin, however, caused a sudden fall to one-half or one-third. The normal level was gradually reached during the succeeding four or five hours. Further, the restoration coincided closely with the return of the myasthenia. Experiments *in vitro*, to determine whether the esterase was destroyed or merely inhibited, established the case for inhibition, as would be anticipated from the reversibility of the action alluded

to above. The urine of a number of patients was examined for esterase activity; but in no case was any found. Anti-esterase effects were obtained with the urine of two patients with *myasthenia gravis* two hours after the administration of prostigmin, showing an excretion of the drug by the kidney.

McGeorge suggests that in normal persons a state of equilibrium exists between the rate of liberation of acetylcholine at the motor end-plates and the rate of its destruction by choline esterase. In *myasthenia gravis*, either acetylcholine is deficiently produced or local esterase concentration is increased, a possibility that cannot be decided by estimation of sera from mixed venous blood.

This is a most important work, and is in strict conformity with Dale's hypothesis. It represents a difficult analysis, and it is unlikely that the elucidation of such a transitory action will be furthered until a method is devised of obtaining samples of tissue fluid in close proximity to the muscle end-plates themselves.

DISASTER IN ARABIA.

Most people will remember the forced landing of the airship *Horsa* in the Arabian desert in August, 1936, and the rapid and dramatic rescue of its passengers and crew by the Royal Air Force. It is doubtful whether anybody unacquainted with the conditions had any conception of the privations endured by these people during the few hours while they waited for help. They spent these few hours in the scant shade of an aeroplane's wing, on a burning, arid, treeless, seemingly limitless plain, without food and with very little water, and scorched by hot winds. The effects of these dreadful conditions are described by H. Stott, who was one of the passengers.¹ The temperature under the wings was 51.7° to 54.4° C. (125° to 130° F.); the humidity was very low. The first symptoms of heat exhaustion were restlessness, giddiness, faintness, inability to walk beyond a few steps or even to stand, and rapid shallow breathing. These symptoms were followed by collapse, evidenced by a cold skin, a feeble pulse, and cyanosis. There was no clammy sweat; presumably the air was so hot and dry that any moisture on the skin surface vanished immediately. The ship's captain and navigation officer were the first two victims; no doubt mental strain was an important factor in their cases. Everybody suffered from dehydration. The skin lost its elasticity; the eyes became sunken and surrounded with dark rims; the cheeks were hollowed; the pulse became feeble; the urinary secretion failed. A few ounces only of dark, highly concentrated urine were voided during the twenty-four hours following the forced landing. Stott compares the general condition with that seen in cholera. The wonder is that any of the unwitting subjects of Stott's unique study came out of their ordeal alive; a delay of another few hours must have reduced their numbers.

¹ *The Lancet*, January 9, 1937.

¹ *The Indian Medical Gazette*, December, 1936.

Abstracts from Current Medical Literature.

GYNÆCOLOGY.

Sterility.

SAMUEL R. MEAKER (*The Journal of the American Medical Association*, December 5, 1936), in a paper read before the Section of Urology of the American Medical Association in May, 1936, discusses the gynaecological aspect of human sterility. There are three fundamental principles to be borne in mind in all recent advances in the diagnosis and treatment of sterility. First, in the great majority of cases of human infertility the cause of the defect is not some single abnormality, but rather the summation or totality of several factors. Secondly, the multiple factors are partly genital and partly constitutional. Thirdly, the several factors existing in each case are seldom limited to one partner. There are four important groups of gynaecological factors of infertility. First, there may be female genital hypoplasia. Secondly, the endocervical mucus is often so thick and tenacious that spermatozoa are unable to penetrate it. Thirdly, there may be partial or complete obstruction of the Fallopian tubes, which constitutes an obvious impediment to conception. Fourthly, there may be deficient oögenesis. The author reviews the long series of routine procedures necessary for the thorough investigation of a sterile mating. The methods of treatment are fairly well standardized. Endocervical infections may be cured by cauterization, or a small posterior median dissection may be performed for the condition of pin-hole os. Insufflation of the tubes may relieve partial obstruction. Salpingostomy is a valuable procedure in some cases. In deficient oögenesis the endocrinologist may be of assistance. The author is of opinion that conservative operations on the ovaries are of great value for the purpose of restoring normal follicular functions.

Cancer of the Cervix Uteri.

HERMAN C. PITTS AND GEORGE B. WATERMAN (*Surgery, Gynecology and Obstetrics*, January, 1937) report a series of 293 cases of cancer of the cervix uteri. The patients were observed over a period of five years after treatment. The method of treatment was by radium. The authors give full details of the dosage and method of application of the radium after a brief discussion of the various methods of treatment that are available. In their first group (1921 to 1925) there were 120 cases; in the second group (1926 to 1930) there were 173 cases. In the first group radium was used in three tubes of 50 milligrammes and two tubes of 25 milligrammes, of standard size. The radium was inside a silver tube,

0.5 millimetre in thickness, which was in a brass capsule 1.0 millimetre in thickness. In addition there were ten needles of five milligrammes each, made of steel alloy. The authors do not state the screenage of the needles. The total dose of 3,000 to 4,000 milligramme-hours was given in two or three treatments two or three weeks apart. Two fifty-milligramme tubes in a rubber tube were placed in tandem in the cervico-uterine canal, one fifty-milligramme tube and two twenty-five-milligramme tubes and ten steel needles were made into a pack and placed against the cervix, or the needles were thrust interstitially into the growth. In the second series of cases they added to the fifty-milligramme and twenty-five-milligramme tubes radium needles varying from 4.0 milligrammes to 2.0 milligrammes and screened with 0.5 millimetre of platinum, and two twenty-milligramme tubes screened with 0.5 millimetre of platinum. Their immediate mortality in a series of 373 cases, excluding death from sepsis, uterine hemorrhage, cerebral hemorrhage and pulmonary embolism, was 2.1%. Twenty-two patients developed fistula into the bladder or rectum. Of the 293 patients that were seen or examined, 17 were in too advanced a stage to be treated or refused treatment. The absolute survival rate was 26.9%. For the first five years the survival rate was 20% and for the last five years 31.7%. A complete table is given by the authors of their various stages of treatment *et cetera*. The authors believe that interstitial radiation, with low-intensity, long needles with a screening of 0.5 millimetre of platinum, is a valuable method of treatment and is in advance of other methods in view of the slightly improved survival rates.

Metrochylorrhœa.

V. B. GREEN-ARMYTAGH (*Proceedings of the Royal Society of Medicine*, November, 1936) reports a case of metrochylorrhœa. The patient, who was shown before the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, was thirteen years of age. When six and a half years of age she was taken to a hospital for children on account of profuse vaginal hemorrhage; on that occasion no pus or gonococci were found. A month later the discharge recurred and the report on microscopic examination stated that it consisted of organized fibrin with diffuse cellular infiltration, mostly with small lymphocytes. The condition continued to recur for three years, the discharge being described as profuse and milky and occasionally tinged with blood. The mother stated that the child was free from discharge for a month at a time; then suddenly the profuse discharge, milky in nature, would return for a few weeks, more often in winter than in summer. In February, 1934, she was admitted to the West London Hospital on account of the profuse discharge. She was losing one or two pints of fluid a

day from the vagina. The uterus, on examination under anaesthesia, was found to be infantile. There was slight cystic enlargement of both ovaries. While the patient was in hospital cellulitis of the buttocks occurred. There was no reaction to the oestrin test. The abdomen was opened on the suggestion that the uterus might have a cystic lipoid lymphangioma in it. The appendix was removed; no lymphangioma was discoverable in the lumbar region, broad ligament or utero-vesical pouch. A week later she developed another attack of cellulitis of the buttocks. In May, 1934, she returned, in a worse condition. Milky fluid was flowing from the vagina, a drop a minute, and it was possible to collect a large quantity by the simple procedure of placing a lippled vessel against the vaginal margin. It was considered that the fluid had the typical characteristics of chyle. There was no chyluria. The discharge continued, the child passing as much as 1,100 cubic centimetres (two pints) of chyle a day. In June, 1934, chyle could be seen pouring from the external os uteri; a sound was passed into the uterus, and from that day the profuse discharge ceased, and only very occasionally afterwards were fibrinous masses passed. The child had several further attacks of cellulitis. She began to menstruate. The breast and hair development was normal. This condition was considered on discussion to be one of abnormal development of the local lymphatics. There was no recurrence of the condition over a period of two years.

Studies in Ovulation.

LAWRENCE W. WHARTON AND ERLE HENRIKSEN (*The Journal of the American Medical Association*, October 31, 1936) have carried out observations in periodic intermenstrual pain, called by the Germans *Mittelschmerz*. The cause of this pain has never been determined. The authors give a brief review of the literature, particularly in regard to the phenomena attending ovulation. In the clinical study of their 61 cases they consider the incidence, the time of the pain, the age of onset, the character of the pain, the acute type and its history, the mild type, associated dysmenorrhœa, sterility and associated bleeding. Thirty of the 61 patients were subjected to laparotomy. In nine who were operated on while suffering from intermenstrual pain there was evidence that ovulation had just occurred. There were ruptured follicles with varying amounts of free blood in the pelvis. The only procedure that has uniformly eliminated the pain has been removal of one or both of the ovaries. Supravaginal hysterectomy in two cases had no effect. Very little result has been obtained by such operations as curettage, cauterization of the cervix, excision of old grey Graafian follicle cysts, and appendicectomy. The pain seems to occur only during ovulation.

It has not been noted by the authors either before the menarche or after the menopause. The syndrome is not always persistent. It may come and go at varying times. The authors have found no pathological basis for the syndrome or explanation of it. Women who have painful ovulation are usually fertile and bear healthy children. Therefore it does not interfere with the production of normal ova. The authors recommend the careful study of normal ovulation.

The Diagnosis and Classification of Menstrual Disorders.

JOHN C. BURCH AND G. S. McCLELLAN (*The Journal of the American Medical Association*, January 9, 1937) discuss the diagnosis and classification of menstrual disorders. They conclude that the disorders of menstrual interval and flow are the result of an ovarian under-function, which is indicated by the state of the endometrium. This may be the result of a primary lesion in the ovary or may arise as a secondary manifestation of a lesion in other endocrine glands. There are various clinical methods available to determine the type of disorder of the endocrine gland, and these should be taken into consideration in these cases before treatment is instituted.

OBSTETRICS.

Tubal Pregnancy Associated with an Ovarian Cyst.

S. GORDON LUKER (*Proceedings of the Royal Society of Medicine*, November, 1936) reports a case of tubal pregnancy associated with ovarian cyst. A specimen obtained at operation was shown before the Section of Obstetrics and Gynaecology of the Royal Society of Medicine. The patient was twenty-six years of age and had had one child eight months previously. For six weeks there had been vaginal discharge, sometimes red or brown. Prior to this menstruation had been regular. For five days she had suffered from abdominal pain. When the patient was first seen by the author, she was pale; her pulse rate was 96 per minute, and her temperature was 37.25° C. (99° F.). There was tenderness on suprapubic pressure. A soft swelling was found on the right side of the uterus, and there was great pelvic tenderness. When the abdomen was opened there was free bleeding, and the right appendages were found to be surrounded by a mass of blood clots. The right ovary and tube were delivered and removed from the mass. The tumour consisted of an ovarian cyst, about 3.75 centimetres (one and a half inches) in diameter, on the top of which was the uterine tube containing the remains of the ovum, the small fetus and the umbilical vesicle, and a mass of blood clot. The course of the tube was very much altered and bent by the ovarian cyst. The author con-

sidered it possible that there might have been occlusion of the tube through this at its proximal end. The left tube and ovary were healthy.

The Use of the Cranioclast.

E. KEHRER (*Monatsschrift für Geburtshilfe und Gynäkologie*, October, 1936) considers that the cranioclast has fallen into disuse mainly because of the unsatisfactory models of Simpson and Braun. He describes the model introduced by his father, which differs from the Simpson-Braun instrument in having one blade solid with serrations in the centre of the concave surface, while the other blade fitting into it has a fenestrum. The secret of its use is to place the external blade not only over the face, but down as far as the chin. To obtain this grip the skull must not be perforated in the parietal region or in the neighbourhood of the posterior fontanelle, but at or near the anterior fontanelle. The author recommends that before perforation of the skull the vertex should be converted to a face presentation, the operation being thus made much easier. If this is done, there is no need for the cumbersome combined cephalotribe and cranioclast of Auvard.

Therapeutic Abortion by X Rays.

MAX D. MAYER, WILLIAM HARRIS AND SEYMOUR WIMPFHEIMER (*American Journal of Obstetrics and Gynecology*, December, 1936) discuss the results of X radiation as a method of inducing abortion in 200 cases. At the Mount Sinai Hospital, when the question of the interruption of pregnancy arises, a consultation is held between representatives of the gynaecological department, radiotherapy department and the department dealing with the condition for which therapeutic abortion is being considered. At this consultation it is decided: first, whether the induction of abortion is necessary, and secondly, what method should be employed. When X radiation is decided on, a mild cathartic is given on the evening prior to the treatment and the bladder is emptied immediately before the treatment. The patient is warned of the possibility of permanent amenorrhoea. The outline of the uterus is marked on the anterior abdominal wall, and the central beam is directed through the middle of the fundus. The dose is 60% of a skin erythema dose given to the centre of the uterus. The patient is instructed to return at intervals of a week and/or at the first signs of bleeding or cramps. These usually occur about four weeks after the treatment. The patient is then admitted to hospital. As a rule she expels a dead fetus without further interference and without much hemorrhage. The convalescence is uneventful. Patients are instructed to avoid coitus between the treatment and the abortion. One woman neglected this advice and became infected with gonorrhoea; as a consequence her puerperium was complicated by pelvic infection. After

abortion patients are advised not to become pregnant again. Pregnancy may occur, although there is no recurrence of menstruation. If it does, the treatment may be repeated. If, as rarely happens, pregnancy continues despite treatment, it must not be allowed to continue to term, owing to the possibility of the birth of an abnormal child. It is doubtful whether the irradiation could have any influence on the children of subsequent pregnancies; but the authors consider that X ray induction of abortion should be confined to women that are agreeable to have no more children and that are suffering from some condition that is a permanent source of danger in pregnancy or childbirth. At the same time, they state that they have observed five children of subsequent pregnancies, all of whom appeared to be normal. The method of induction of abortion by X radiation was ideally successful in 90% and clinically successful in 96% of the authors' series of 200 cases. There is no mortality and there is very little morbidity. Close cooperation between the radiotherapist, gynaecologist and others is necessary. There must be careful control, observation and follow-up. "The clinical picture is that of a missed abortion with a latent interval averaging about four and one-half weeks."

The Technique of Caesarean Section.

R. T. VON JASCHKE (*Monatsschrift für Geburtshilfe und Gynäkologie*, October, 1936) discusses the value of the Doerfler incision in cases requiring Caesarean section. By this method the pregnant uterus is brought out of the abdomen and carefully packed off from the abdominal cavity. A transverse incision at the junction of the body and the lower uterine segment is then made and the fetus extracted. Doerfler stated that the maternal mortality was under 1% with this technique in his experience. While the author has also had good results, he cannot agree with Doerfler that this operation is suitable for every case. He makes a plea for extensive investigation of the operation so that a decision in the matter can be reached.

The Hour of Delivery.

H. GUTHMANN AND M. BIENHÜLS (*Monatsschrift für Geburtshilfe und Gynäkologie*, November, 1936) have analysed the records of the Frankfurt clinic to determine whether popular beliefs regarding the hours of delivery have any basis on fact. They found that 49.4% occurred in the night, as compared with 50.6% in the day-time. For primiparae the figures were 48.8% and 51.2% respectively. The hour at which most deliveries occurred was 11 a.m. The onset of labour occurred in 59% of cases between 2 a.m. and 3 a.m.; fewer commenced between 11 a.m. and midday than at any other hour. During the past eight years there has been a slight increase in the onset of labour at night; but the authors cannot ascribe this to any particular factor.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Children's Hospital, Carlton, Melbourne, on Wednesday, October 21, 1936. The meeting took the form of a series of clinical demonstrations.

Acute and Chronic Urinary Infections.

DR. A. P. DERHAM, assisted by DR. RONA PANTING, presented a series of patients illustrating various methods of treatment of acute and chronic urinary infections, particularly in regard to the various methods of administration of mandelic acid; the patients were all female children.

The first patient, I.Y., aged seven years, was admitted to the hospital on August 17, 1936, suffering from acute pyelitis. The onset had been acute, with pain in the lower part of the abdomen, frequency of micturition, much scalding and nocturnal frequency, preventing sleep; there were vomiting, anorexia and constipation also. The temperature in the evening rose to 38.35° C. (101° F.) and later to 39.33° C. (102.8°). On examination there was tenderness in both loins. The urine was very acid and contained much pus and many motile bacilli. Potassium citrate was administered in a dose of 2.6 grammes (40 grains) four times a day (every six hours) and the urine was kept alkaline for several weeks. On that treatment the child's condition rapidly improved and all abnormal signs and symptoms had disappeared in ten days, the urine being free from pus and bacilli on the tenth day after alkalization.

Another patient shown by Dr. Derham, B.S., six years of age, was admitted to the hospital on June 28, 1936, suffering from acute urinary infection. She had been ill for six days with pain in the loins, enuresis, frequency of micturition and incontinence of urine, the urine being foul-smelling and containing many pus cells and motile bacilli. On examination, there was tenderness over both kidneys. The temperature rose to 40.44° C. (104.8° F.) in the evening, and fell to 37.25° C. (99° F.) in the morning. Ammonium chloride was administered in a dose of 0.972 gramme (15 grains) four times a day (every six hours). By this method the urine was kept acid below a pH of 5.3, methyl red being used as a colour indicator, with a series of tubes containing liquids of graduated colour standards. The child's condition improved rapidly on the treatment; her temperature was normal on July 5, and the urine free from pus and bacilli on July 7, 1936. At the time of the meeting, the child's condition presented no abnormal urinary signs except occasional enuresis.

Dr. Derham also showed a child, V.B., four years of age, who was admitted to the hospital on July 22, 1936, having been ill for two and one-half days with vomiting, drowsiness and abdominal pain; she had had an initial nasopharyngitis. At the time of admission her temperature was 39.45° C. (103° F.) in the evening and rose to 40.8° C. (105.6° F.) during the first fortnight. The urine contained many pus cells and motile bacilli. At first alkaline treatment was instituted and 1.3 grammes of potassium citrate (twenty grains) were administered at frequent intervals for two weeks. It was found difficult to keep the urine continually alkaline by this method, and the treatment had no effect on the temperature range or on the urinary findings. Potassium citrate treatment was discontinued on August 1, 1936, and on August 3, 1936, 0.97 gramme (fifteen grains) of ammonium chloride was administered every six hours until the pH reaction of the urine fell below 5.3. Some improvement in temperature followed this administration, but no decrease in the amount of pus in the urine. On August 12, 1936, 1.94 grammes of sodium mandelate (thirty grains) were given every six hours in conjunction with the ammonium chloride. Almost immediately the child's condition improved; her temperature fell to normal on August 14, and had remained normal. The pus and bacilli disappeared from the urine on August

26, 1936, at which point treatment was discontinued. The child had remained in a satisfactory condition ever since. Radioscopic investigation of her urinary tract by pyelogram had revealed a dilated left ureter.

Another patient shown by Dr. Derham, M.McK., two years of age, was admitted to the hospital on July 1, 1936, suffering from symptoms of recurring pyelitis following tonsillitis. In this attack the patient had been feverish for two days with a temperature as high as 40.55° C. (105° F.); the symptoms had been those of acute tonsillitis. On July 9, 1936, she developed urinary symptoms with abdominal pain and dysuria; and it was found that her urine contained many pus cells and motile bacilli and was acid in reaction. Twenty to thirty grains of potassium citrate (1.29 to 1.94 grammes) were administered at frequent intervals in order to keep the urine alkaline to litmus. The temperature fell to 37.25° C. (99° F.) on that treatment and the pus cells and bacilli diminished; treatment, however, did not prevent a relapse in the temperature, which again rose to 40° C. (104° F.), and a return of very severe urinary signs. On July 25, 1936, the administration of potassium citrate was discontinued and 0.648 gramme (ten grains) of ammonium chloride (later increased to 0.97 and 1.29 grammes) (fifteen and twenty grains) was administered every six hours; but even with these doses it was not possible to render the urine acid until July 31, 1936, when the temperature rose to nearly 41.1° C. (106° F.); after that the urine was maintained at a pH value below 5.3. The temperature gradually fell to normal and on August 3, 1936, the urine was free from pus cells and bacilli. The convalescence of the patient was complicated because she had infected tonsils which gave rise to minor attacks of illness every few weeks; it was proposed to remove the tonsils on the day after the meeting.

Another patient shown by Dr. Derham, A.Y., ten years of age, had been an in-patient at the Frankston Orthopaedic Section, suffering from the after-effects of poliomyelitis, for several years. For ten months prior to the meeting she had had abdominal pain in the left side but no urinary symptoms. She had had persistent bacilluria for seven years. A pyelogram had revealed a double hydronephrosis, probably congenital, and her urine had been loaded with pus cells and motile bacilli and had been neutral in reaction to litmus. She was admitted to the Children's Hospital on October 3, 1936, and a proprietary preparation of ammonium chloride and mandelic acid ("Mandelix") was administered in a dose of eight grammes (two drachms) every six hours and the urine rendered acid (pH value below 5.3). The dose of "Mandelix" was reduced to six grammes (one and a half drachms) on October 7, 1936, but the pH value of the urine rose above 5.3, and on October 10 the dose was again increased to eight grammes. By the next week the pus and bacilli had disappeared from her urine, which remained clear until the time of the meeting.

The clinical histories of these patients were demonstrated on temperature charts with coloured graphs to indicate the urinary reactions and pus content, and samples of the various drugs and mixtures used in the treatment were provided for demonstration and tasting. The patients represented typical examples of a group which had been investigated to compare the results of treatment with mandelic acid with those of the older methods of urinary alkalization and treatment with sodium acid phosphate and hexamine. The series under review was not large enough to justify dogmatic opinions, but Dr. Derham felt that in cases of chronic urinary infection at least the mandelic acid treatment represented an advance on the older methods.

In these cases the children took the necessary amounts of ammonium chloride and sodium mandelate, suitably disguised in a liquorice mixture, without complaint or nausea and in these patients the acidification of the urine did not seem to increase the bladder discomfort. Dr. Derham said that in several patients not demonstrated he had found that the acid treatment in the early stages of acute pyelitis and cystitis had seriously increased the bladder discomfort and a return was made to the treatment with sodium citrate until the acute symptoms died down. The child B.S., whom Dr. Derham had shown, exemplified,

however, that in some cases of acute pyelitis it was possible to acidify the urine with ammonium chloride with good results and without causing any undue bladder irritation.

Dr. Derham said that time had not permitted comparison with a controlled series of patients treated with sodium acid phosphate and hexamine, but his general impression, which had been confirmed by other members who had tried both methods, was that the sodium mandelate method was preferable from the patients' point of view and gave much better results in reducing urinary infection. No claim was made that it effected a complete cure, as no attempt had been made to determine, by attempted culture, whether catheter specimens of urine were sterile. It did seem, however, on the evidence of a small series of patients treated by this method, that it represented an advance in the immediate treatment of chronic and subacute urinary infection, even when that depended on untreatable organic abnormality. Dr. Derham said that he proposed to continue the investigation with a controlled series and report results at a later meeting. He wished to acknowledge the help of his colleagues on the honorary staff in making available some clinical material for the investigation.

Disturbances of Growth in Childhood.

DR. IAN WOOD and DR. FRANK FARMER demonstrated a series of patients showing disturbances of growth in childhood. It was emphasized that there were wide variations of normal development and two common types were selected to illustrate them. Firstly, there was the tall thin girl who was pale, constipated and tended to faint at school. A faint systolic murmur at the base or at the apex of the heart was common, as in every other normal child, and this often led to the erroneous diagnosis of "heart disease". The prognosis was excellent so long as a neurosis was not established by the parents or their medical adviser. A healthy outdoor life with plenty of sport, sun and confidence in their well-being, produced the best results in such patients. Postural exercises and iron, rhubarb and soda mixtures were useful adjuncts. Secondly, there was the fat intelligent boy. The obesity could be benefited greatly by educating him in the benefits of a diet of low caloric value and of exercises. A preliminary stay in hospital of one month was often of great assistance. On the other hand it was shown that many chronic diseases in childhood retarded normal growth and patients with cretinism, coeliac disease, Hirschsprung's disease, and chronic nephritis were shown to demonstrate this.

Dr. Frank Farmer showed pictures of B.F., a cretin baby, aged four months, who had been brought to the hospital because there had been no gain in weight. The tongue was enlarged; coarse hair was encroaching on the forehead; the skin was dry and wrinkled; the baby was hypotonic and had an umbilical hernia and a protruding abdomen; the neck was short, with pads of creased supraclavicular fat.

Treatment was instituted with thyroid extract, the initial dose being 0.0648 gramme (one grain) a day, which had been increased in three weeks to 0.1944 gramme (three grains) a day, with rapid improvement in the patient's condition. The child was five years of age at the time of the meeting and had become practically normal; the dose of thyroid gland extract had been increased to 0.2592 gramme (four grains) a day. She had had intercurrent infections, such as bronchitis and impetigo, which had been mild.

Fractures Involving Epiphyses.

DR. W. R. FORSTER showed a series of patients to illustrate some of the sequelae of fractures involving epiphyses. A child who had sustained an oblique fracture of the diaphysis of the humerus with slight dorsal displacement of the lower fragment had developed a severe degree of *myositis ossificans* which was gradually being absorbed after the limb had been in plaster for four months. Three years after a young child had sustained a compound fracture close to the lower epiphysis of the tibia, alteration of the growth at the epiphysis had led to the gradual onset of a varus deformity of the foot with overgrowth of the lateral malleolus, producing a condition akin to Madelung's

deformity of the wrist. Two patients were shown by Dr. Forster with fracture of the capitellum of the humerus, with lateral displacement of the epiphysis and a small portion of the diaphysis; as a result of treatment there was good function, but slight limitation of extension and a *cubitus valgus* of slight degree.

Osteochondroplasia.

Dr. Forster also showed three patients with Perthes' osteochondritis of the hip at the end of three years' treatment. In one patient the head of the femur had been completely reconstituted, and radiologically the only apparent change was a slight broadening of the femoral neck. In another patient, the head and neck of the femur were reconstituted, but there was slight mushrooming of the head. In the third patient, the hip, while apparently normal clinically, still showed gross bony and cartilaginous changes radiographically. Dr. Forster directed attention to the discrepancy between the clinical and the radiographic appearances.

Torticollis.

Dr. Forster also showed a patient upon whom he had operated for torticollis by dividing thoroughly the cervical fascia; a section of the sterno-mastoid had also been removed. An excellent functional result had been obtained, and at the end of two months the sterno-mastoid muscle had an appearance which suggested that it had never been sectioned.

Lesions of the Upper Femoral Metaphysis.

DR. ERIC E. PRICE showed a series of five patients illustrating various lesions of the upper femoral metaphysis.

The first patient was a girl, V.J., twelve years of age, with tuberculous metaphysitis. She had been seen first at the age of four years, when she had a localized focus in the infero-medial aspect of the right femoral metaphysis, which was regarded as tuberculous on clinical and on radiological grounds. This focus had healed, with reconstitution of the bony architecture and a movable joint after two years, though in the skiagrams there was undue translucency of the epiphysis. The patient had been allowed to walk, and in a further two years a complete relapse had occurred; over a period of eighteen months destruction had proceeded to complete disorganization of the joint. The process had then become quiescent, but treatment had been required for two and one-half years before the radiological picture showed sound bony union. The hip had ankylosed in good position, but there was shortening of the limb amounting to two inches.

Dr. Price's next patient was a girl, P.G., eight years of age, whose hip joints had been the site of a disease process of unknown aetiology during an illness of three years' duration. The right hip had been involved first and the left hip had been affected three weeks later. At the onset the child was feverish and developed fullness in Scarpa's triangle with tenderness and limitation of flexion and abduction. The first skiagram showed active absorption of bone from the right femoral metaphysis and a relatively dense capital epiphysis; the appearances on the left side were regarded as normal at that stage. Six months later, however, on each side the neck had largely disappeared; it had been replaced by a thin spur of bone, surmounted by a distorted capital epiphysis which still articulated in the acetabulum, and definite *coxa vara* had developed. A year later the patient had been admitted to the Children's Hospital at Frankston. At first, traction had been applied, but for the past fifteen months she had been in a double Thomas hip splint. The condition appeared to be quiescent with both hips stiff, though not ankylosed, in 30° of flexion. The blood sedimentation rate was represented by a flat line, there was no response to the Mantoux and Wassermann tests, and there were not any sinuses or sequestra. It was thought likely that the condition was an inflammatory lesion of low grade coccal origin.

Dr. Price then showed a girl, V.R., aged nine years, who had been under observation for three months on account of a lesion of the Brodie's abscess type. The onset of

lameness in the right hip had been insidious, and it could be demonstrated in the skiagram that there was an area of destruction in the mid-zone of the upper femoral metaphysis and that the epiphysis was commencing to slip. Movement was limited only at the extreme. There was no response to the Mantoux test; the blood sedimentation rate curve indicated abnormal activity and it was thought likely that the condition was of staphylococcal origin. To prevent further slipping of the epiphysis this patient had been treated in a widely abducted double Thomas hip splint with traction and her condition was improving satisfactorily. After treatment for one month the sedimentation curve indicated inactivity, and the last skiagram taken showed a well localized cavity in the mid-zone with consolidating walls and a small sequestrum.

The next patient shown by Dr. Price was a boy, R.W., aged eight years, who had had a subacute metaphysitis due to infection by *Staphylococcus aureus* three years earlier. At first he had had a low grade osteomyelitis of the whole of the right upper femoral metaphysis, of seven weeks' duration. The patient had been in a plaster spica for six months, after which he had been allowed to walk. An abscess had formed below the gluteal fold and from it *Staphylococcus aureus* had been cultured. The abscess had been opened. The boy had improved rapidly, the sinus had closed, and at the time of the meeting he had practically full hip movement, no shortening and only one-half inch of wasting; function was nearly perfect.

Dr. Price's last patient was a male, aged four years, who had had osteochondritis and a pseudo-cyst. The patient had first been seen four months before the meeting, when he gave a history of two weeks' lameness and pain in the left groin. A skiagram had shown flattening and fragmentation of the capital epiphysis, with a large pseudo-cyst in the mid-zone of the metaphysis. The right capital epiphysis had also shown irregularity of density, suggesting early pathological change, and the hip movements had been limited by muscle spasm. The patient had been regarded as having osteochondritis of the ordinary type, though the possibility of the changes being secondary to a low grade metaphysitis had been entertained. There was no response to the Mantoux test and the blood sedimentation rate was within normal limits. Weight-bearing had been prevented by an over-long patten-ended Thomas knee splint with a patten on the other foot. Four months later the muscle spasm had disappeared and movement was limited only at the extremes, especially the movement of rotation, though the radiographic signs persisted.

Some Problems in Infant Feeding.

Dr. ROBERT SOUTHBY demonstrated some problems in infant feeding. The problems were considered in two groups: (i) failure to thrive on breast milk; (ii) digestibility of cow's milk, with special reference to the curd tension factor.

In opening his remarks, Dr. Southby stated that there was unanimous agreement by pediatricians upon two general principles in infant feeding: (a) the best food for the infant was breast milk; and (b) the best substitute for breast milk, when for any reason it was not available, was cow's milk. From that stage onwards there was a widespread divergence of opinion upon the best method of rendering cow's milk digestible and assimilable for the individual infant. Dr. Southby said that the purpose of the demonstration was to endeavour to clarify some of those difficulties.

Dr. Southby said that probably the most common cause of failure to thrive on breast milk was a diminution of the normal supply of a suitable feeding. All were familiar with the healthy but hungry infant; crying more or less constantly, quiet only for a short time after each feeding, not vomiting and showing the typical starvation stool, frequent liquid brownish motions, and excoriated buttocks. Dr. Southby said that one encountered less commonly the infant who failed to thrive because of an excess supply of a suitable feeding. This type of infant sucked vigorously, but regurgitated or actually vomited a certain amount of milk after each feeding; the infant was uncomfortable and cried spasmodically because of flatulence and colic; the stools were somewhat greenish,

slimy and with fine curds of incompletely digested milk. Dr. Southby said that so far it had been assumed that breast milk supplied by Nature was always suited to the infant; this assumption was correct in the majority of cases, the commonest problems being those of either too little or too much breast milk. But from time to time infants were encountered who failed to thrive because the breast milk was unsuitable in composition. Dr. Southby here quoted an interesting series of case histories of infants who had failed to thrive after several weeks or even several months of breast feeding. With these babies test feedings for a twenty-four hour period had shown sufficient quantity, but analysis of a composite sample of twenty-four hours' secretion from the breast showed a departure from the normal composition in one or more of the principal constituents, protein, fat and lactose. These infants presented the problem of an ample supply of an unsuitable feeding and, although the composition of the breast milk could be altered by varying the mother's diet, gross departures from the normal were generally an indication of weaning.

Finally, there was the very exceptional infant who was unable to thrive on a normally constituted breast milk.

Fortunately most healthy babies who were deprived of breast milk were endowed by Nature with a wide range of adaptability for cow's milk, and consequently had little or no difficulty in becoming established on an artificial feeding. Dr. Southby said that there were some babies who would even tolerate whole cow's milk quite early, while most of them could readily assimilate it in a suitable dilution with water. Dr. Southby said that it was generally the small proportioned babies who could not take cow's milk so easily, and it was with those babies that the problems and arguments on the subject of artificial feeding arose.

Dr. Southby said that he would like to consider what happened when those infants were given cow's milk either whole or diluted. As a rule they vomited and the vomit contained hard, tough, leathery curds; their stools were hurried, greenish, slimy, and incompletely digested, and they also contained tough, leathery curds. These, of course, were the typical protein or casein curds and were due to the great excess of casein over lactalbumin in cow's milk (5 to 1) in contrast with the preponderance of lactalbumin over casein in breast milk (2 to 1). No matter in what manner one attempted to "humanize" cow's milk, the chief stumbling block would always be the casein, since even if the milk was modified so that it had an approximately similar percentage composition, the nature of the protein was entirely different. Dr. Southby said that it was difficult to find a way in which to overcome that problem. Various means of modification of cow's milk, it had been claimed, rendered it suitable for the infant: (i) dilution with water; (ii) dilution with cereal waters; (iii) dilution with lime water; (iv) boiling; (v) alkalization with (a) bicarbonate of soda, (b) citrate of soda; (vi) acidification with (a) lactic acid, (b) vinegar, (c) orange or lemon juice, (d) lactone syrup preparations; (vii) Bengerization or peptonization; (viii) condensing; and (ix) drying. Every one of these modifications had been claimed at some time or other to solve the problem. Dr. Southby said that some appeared diametrically opposed to others in theory (for example, alkalization and acidification). A thorough investigation of these different methods revealed that they all brought about some change in the original milk, namely, an alteration in the curd tension factor. The purpose of Dr. Southby's demonstration was to show that that factor operated.

Reuben L. Hill, of America, had devised the Hill test for estimating the curd tension of any particular sample of milk; in other words, of the degree of toughness in the curd. Dr. Southby described this test, which consisted of drawing a ten-blade curd tension knife through a specified quantity of milk curdled in a standard-sized jar. The knife was drawn by means of a spring balance attached to its upper end, and the reading recorded the tension necessary for this purpose. Dr. Southby said that various samples of cow's milk could thus be classed either as "soft curd milks", with a tension below thirty grammes, or as "hard curd milks", with a tension varying

from sixty to two hundred grammes. In contrast, breast milk formed such a light flocculent curd that it would not register on the balance, the curd tension factor being practically nil. The curd tension of any particular sample of milk was closely associated with the casein content. The various modifications of cow's milk described had at least one result in common—they all lowered the curd tension of the cow's milk; and herein seemed to lie the explanation of why those varying methods made the milk more easily digestible for the infant. Dr. Southby said that the curd tension figure for any individual cow was practically uniform, but some breeds of cattle produced cows with infinitely softer curd than others. In this respect Ayrshire cattle had by far the highest proportion of soft curd cows. Dr. Southby contended that the value of the test lay in the fact that, by applying it, a herd of soft curd cows could be selected which should supply a milk eminently suitable for infant feeding.

In conclusion, Dr. Southby showed a number of specimens of curd from cow's milk and its modifications, which indicated in a striking fashion how the large, tough, leathery curd of whole cow's milk could be reduced by the various processes to something approaching the fine, soft, "clabbery" curd of the breast milk sample.

Hirschsprung's Disease.

DR. H. BOYD GRAHAM showed two boys with Hirschsprung's disease, and notes of the histories of two babies in whom the presence of this condition was established clinically and radiographically in the third month of life, though both babies died of bronchopneumonia shortly afterwards. One of the boys shown by Dr. Graham (by the courtesy of Dr. Ian Wood) was known to have had Hirschsprung's disease from the age of three months. At three and a half years, in 1928, Wade and Royle's operation had been performed on the left side, with subsequent dilatation of the pelvi-rectal sphincter; but the boy still required constant attention and had a greatly dilated colon. The greatest relief from troublesome symptoms had been obtained by the introduction each night, over a period of years, of liquid paraffin *per rectum*, in amounts varying from 169.8 grammes to 56.6 grammes (six ounces to two ounces). The other boy shown by Dr. Graham was seven years of age, and though he had attended the outpatient department at the age of four months, on account of persistent constipation with severe straining and the passing of hard motions, the condition had not been recognized then. He resumed attendance on July 17, 1936, because of intermittent epigastric pains and vomiting, abdominal distension and constipation with visible peristalsis. A few days after the administration of a high enema the abdomen was lax and not at all distended, but the trouble recurred on August 10, 1936, and on investigation it was established by radiography (after the giving of opaque meals and clysmata) that the condition was Hirschsprung's disease. The boy was well grown and his mental condition appeared to be unimpaired.

Dr. Boyd Graham discussed modern views on the aetiology and treatment of Hirschsprung's disease, and expressed the opinion that the reports of the results which followed the operation of presacral and inferior mesenteric neurectomy (Rankin and Learmonth) were sufficiently good to justify this form of treatment in the boys he had shown. He also pointed out that this condition was diagnosable in infancy and that the operation might be even more satisfactory if it were performed while the patient was very young and before much structural alteration had taken place in the colon. The desirability of establishing adequacy of renal function was also mentioned, in view of the possible involvement of the bladder and ureters in the achalasia of the pelvi-rectal sphincter, which was postulated as the basis of the condition and was the rational explanation for the success that followed the operation suggested.

Tachycardia.

DR. L. P. WAIT showed a male patient, twelve years of age, who had been admitted to the Infectious Diseases Hospital at Fairfield seven months earlier, with mild diphtheria and a pulse rate of 150 per minute. The patient

had been kept in hospital for a period of five months on account of tachycardia, which apparently had not altered during his stay there; he had had no symptoms associated with the tachycardia. The patient then attended the outpatient department of the Children's Hospital, Melbourne. When he was first seen the pulse rate was 150 per minute and was unaffected by rest or exercise. No obvious enlargement of the heart was found clinically, but on several occasions gallop rhythm was detected; this was brought on by exercise and lasted only several seconds. The boy was admitted to the ward for investigation; by electrocardiograph the tachycardia was recorded and the rhythm was shown to be regular; the P-R interval was 0.2 second; the QRS and T complexes were normal. During his stay in the hospital some variation in the heart rate occurred. An electrocardiographic tracing was taken while he was sleeping, and in it the rate was found to be 85 impulses per minute. No cardiac enlargement was revealed in the skiagram.

Amyotonia Congenita.

DR. J. W. GRIEVE showed a boy, N.L., five years and three months of age, with *amyotonia congenita*. He had been under observation for six months and had only recently started to walk with support. From birth the legs had appeared wasted, though the musculature had improved relatively during the last few years. He was late in sitting up and had commenced to crawl at the age of two years. There were three other children in the family; they were well, but had been rather late in walking. Dr. Grieve was able to demonstrate the general lack of tone and weakness of the muscles of the trunk and of the extremities and the absence of all the deep reflexes. He pointed out commencing deformities in bilateral wrist-drop, eversion of the left foot, and inversion of the right foot. The child was very alert mentally, the isthmus of the thyreoid gland was palpable, and nystagmoid movement of both eyes with slight bilateral ptosis was demonstrable.

Dr. Grieve said that the condition was a rare one and that the child had progressed favourably with the aid of the physiotherapy department; the deformities had been corrected and he could walk fairly well in caliper splints. Dr. Grieve referred to the tendency for this disease to subside gradually, and contrasted it with the Werdnig-Hoffmann type of progressive muscular atrophy in infants; the latter condition affected infants in the second half of the first year and was rapidly progressive.

Diffuse Cerebral Sclerosis.

Dr. Grieve also showed a boy, two years and ten months of age, who had been in the hospital for four months; a brother had died at the age of three years and three months of a somewhat similar condition; he was a cerebral diplegic who developed multiple arthritis and died from bronchopneumonia. There were three older children, who were not affected, and a younger one, who was not yet affected. The child shown by Dr. Grieve had seemed to develop normally, but somewhat slowly, till the age of two years, when tremor of the hand was noticed. The child was unable to sit up without support, except for short intervals, and, with support, walked with difficulty. On admission to hospital in June, 1936, though the legs were spastic and the calf muscles smaller than normal, the patient had good power in his legs; but the symptoms had progressed and he had become very apathetic; he had lost power in the legs, did not understand questions, and could not stand or talk. The knee jerks were very active and the plantar reflexes gave the extensor response. Tremor was observed, especially on attempted voluntary movement, and the tremor of the right arm was more pronounced than on the left side. The boy would not make much effort, and power in the arms was very poor.

Dr. Grieve showed this patient to indicate the type of progressive cerebral sclerosis which tended to affect children after a period of normal development; it was as a rule slowly progressive and was often complicated by visual defects. Dr. Grieve emphasized the familial aspect and pointed out that despite the help of the physiotherapy department, this boy's condition had steadily become worse.

Transverse Myelitis.

Dr. Grieve also showed two patients with transverse myelitis, whom he had shown at the meeting of the Melbourne Paediatric Society on September 9, 1936. He commented on the rarity of the anatomical manifestations of the infection, the extraordinary similarity in the findings in the two patients, the absence of abnormal features on examination of the cerebro-spinal fluid and on the aetiological factor. He thought that the condition was probably an atypical form of poliomyelitis, and emphasized the sudden onset, the diffuse nature of the cord involvement from levels of the sixth cervical to the twelfth dorsal nerves, the presence of a Brown-Séquard type of paralysis, and the involvement of the spino-thalamic pathway. Dr. Grieve said that involvement of this pathway was of interest from the standpoint of the modern conception of the spread of the neurotropic virus of infantile paralysis by means of this pathway and other pathways in the cord. Both these children had made good recoveries from the standpoint of their lower motor neurone muscular paresis, but they still had pyramidal manifestations, especially on the right side, the further progress of which would be followed with interest.

Posture Exercises for Asthma.

DR. MONA BLANCH, MISS VERA CARTER and MISS NEWTON demonstrated a series of patients with asthma who were being treated by exercises. Photographs taken before they came to the clinic showed the bad postures which the treatment aimed to correct. Records of vital capacity, taken at intervals of two months, had shown a steady increase of approximately fifty cubic centimetres in each child at each examination. In all cases the attacks of asthma had been lessened in frequency and severity, and in one, a girl, thirteen years of age, there had not been an attack for eight months. The patient had attended the clinic fifty-two times and had improved remarkably in physique and general appearance. Before joining the clinic in June, 1935, she was still having moderately severe attacks of asthma every six to twelve weeks, despite desensitization with horse dander as well as routine drug and diet therapy. Miss Carter and Miss Newton demonstrated the exercises which were designed to improve posture by developing the shoulder and pelvic girdle muscles, as well as those of the abdomen and spine. In the breathing exercises chief emphasis was laid on expiration, and the child was taught to empty the chest of air as completely as possible—this was in some cases assisted by manual pressure, as in the resuscitation of the apparently drowned.

(To be continued.)

NOMINATIONS AND ELECTIONS.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Suttor, Rawdon Thornton, M.B., B.S., 1937 (Univ. Sydney), District Hospital, Manly.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Boxall, John Stephen, M.B., B.S., 1936 (Univ. Sydney), St. George District Hospital, Kogarah.
Harris, Iza Joan, M.B., B.S., 1937 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
Tomlinson, Paul Angus, M.B., B.S., 1937 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Easson, Anne Karnachan, M.B. et Ch.B., 1924 (Glasgow), 532, Burwood Road, Hawthorn, E.2.

Jeffree, Graeme Paul, M.B., B.S., 1935 (Univ. Melbourne), Mooroopna Base Hospital, Mooroopna.
Langley, Lindon Archdall, M.B., B.S., 1936 (Univ. Melbourne), 184, Auburn Road, Auburn, E.2.
Longmuir, Dudley Owen, M.B., B.S., 1935 (Univ. Melbourne), c.o. Bank of Australasia, Threadneedle Street, London.
Phillips, Winton Henry, M.B., B.S., 1936 (Univ. Melbourne), Royal Melbourne Hospital, Melbourne, C.I.
Sibert, James, M.B., B.S., 1935 (Univ. Melbourne), 50, Hopetoun Road, Toorak, S.E.2.
Foxton, Justin Richard Vernon, M.B., B.S., 1934 (Univ. Melbourne), c.o. Dr. Burston, 62, Toorak Road, Camberwell, E.6.

NOTICE.

THE attention of members of the Queensland Branch of the British Medical Association is drawn to the changed address of the headquarters of that Branch. The new address is: British Medical Association House, 225, Wickham Terrace, Brisbane, B.17.

Post-Graduate Work.**WEEK-END COURSE AT TAMWORTH.**

THE New South Wales Post-Graduate Committee in Medicine announces that, in conjunction with the Northern District Medical Association, it will hold a week-end course at Tamworth on Saturday, April 3, and Sunday, April 4, 1937. The programme is set out hereunder.

Saturday, April 3 (at the Town Hall, Fitzroy Street, Tamworth).

- 11 a.m.: Morning tea.
- 11.15 a.m.: "Advances in Diagnosis and Treatment of Infantile Paralysis", Dr. Edgar Stephen.
- 12 noon: "Some Common Disabilities of the Foot", Dr. D. J. Glissan.
- 1 p.m.: Luncheon at the Royal Hotel.
- 2 p.m.: "Defective Nutrition in Children", Dr. Edgar Stephen.
- 3 p.m.: "Some Useful Orthopaedic Measures in Dealing with Sprains, Fractures of Phalanges and Metacarpals, Ingrowing Toe-Nail, Mallet Finger, Drop-Foot, Club-Foot, Birth Palsy, and Other Conditions", Dr. D. J. Glissan.
- 4 p.m.: Afternoon tea.
- 4.30 p.m.: General discussion on common problems.

Sunday, April 4 (at the Tamworth District Hospital).

- 9.30 a.m.: Demonstration of the application of plaster for Pott's fracture and other conditions, Dr. D. J. Glissan.
 - 10.45 a.m.: Morning tea.
 - 11 a.m.: Demonstrations and bedside discussions, Dr. Edgar Stephen.
- The fee for the course will be £1 1s. Those intending to be present are requested to notify Dr. E. B. Fitzpatrick, 448, Peel Street, Tamworth, as soon as possible.

Correspondence.**EPIDEMIC PLEURODYNIA.**

SIR: I was interested in the letter in your issue of February 13, 1937, from Dr. K. McK. Doig, re an illness resembling epidemic pleurodynia, as I had not read the

report of the disease described in America, and during the past month I have been puzzled by a series of cases occurring in children—four in one family and three in another—besides several isolated cases, the symptoms of which fit in exactly with the disease as described by Dr. Doig.

In every case the onset was sudden, the pain was localized behind the sternum, and the symptoms, generally, suggested the onset of an acute pneumonia. In every case the child showed a remarkable change, sometimes within twenty-four hours.

I have no doubt that the disease epidemic pleurodynia, as described in America, is occurring in Australia.

Yours, etc.,

ROBT. A. ISENSTEIN.

Terowie,
South Australia,
February 16, 1937.

THE FEDERAL COUNCIL

SIR: Your leading article in the journal of February 20 with regard to the activities of the Federal Council should certainly impress all members of the profession.

It is to be regretted that this council is hindered in carrying out its good work through lack of funds, and, as you point out, there are likely to be great changes in the future which will affect all practitioners. Whether these changes will affect us advantageously or adversely will largely depend upon the support and cooperation that are afforded to bodies that are working for the common good, especially as national health insurance and other schemes are appearing on the horizon.

I should like to suggest that a fund be established to support the Federal Council in upholding and fighting for the rights and privileges of the profession, and that every medical practitioner in the Commonwealth be requested to contribute £5 to start with and then £1 *per annum*.

It is only by presenting a united front that we can hope to retain or improve our status, and who would be more fit to look after our interests than a strong Federal Council, backed both financially and morally by the whole profession.

I enclose herewith a cheque for £5.

Yours, etc.,

R. H. OXBY DONALD.

Zeehan,
Tasmania,
February 22, 1937.

[Dr. Donald's cheque has been forwarded to the Secretary of the Federal Council.—EDITOR.]

INHERITED SYPHILIS OF THE SECOND GENERATION.

SIR: By this term I mean syphilis that had been acquired by a grandmother, transmitted to a daughter, who in turn has transmitted the disease to her children. In other words, it would be quite sufficient to know that the mother had congenital syphilis.

I began more than thirty years ago to try to get proof that syphilis would extend to the grandchild from a grandparent. I discarded syphilis in the male line because, although the father might be shown to have inherited the disease so far as his wife was concerned, it would be acquired syphilis.

I have only been able to trace two families with undoubted inherited syphilis in the second generation. There are six others I have investigated, but there is room for doubt.

Yours, etc.,

J. MORRIS ROE.

Victory Chambers,
Queen Street,
Brisbane,
February 26, 1937.

Proceedings of the Australian Medical Boards.

TASMANIA.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Act, 1918*, of Tasmania, as duly qualified medical practitioners:

Hardy, Lowen Alexander, M.B., B.S., 1934 (Univ. Melbourne), New Town, Hobart.
Clarke, Colin Woolner, M.B., B.S., 1935 (Univ. Melbourne), Macquarie Street, Hobart.
Newbold, Vivienne Mary, M.B., B.S., 1935 (Univ. Melbourne), Geeveston.
Gollan, Lachlan Neil, M.B., B.S., 1936 (Univ. Melbourne), Public Hospital, Launceston.
Nott, Lorimer William, M.B., B.S., 1936 (Univ. Melbourne), Public Hospital, Launceston.
Lewis, Reginald Abbot, M.B., B.S., 1936 (Univ. Melbourne), Public Hospital, Launceston.
Chalmers, John Sneddon, M.B., B.S., 1936 (Univ. Sydney), The General Hospital, Hobart.
Redmond, Kenneth Bodell, M.B., B.S., 1936 (Univ. Sydney), The General Hospital, Hobart.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING of the Senate of the University of Sydney was held on Monday, March 1, 1937.

The following appointments were approved: Dr. A. S. Walker as Demonstrator in Pathology for Lent Term; Mr. J. Cobcroft as Senior Demonstrator in Pharmacy; Mr. L. J. Harris as Junior Demonstrator in Pharmacy.

The date of the matriculation ceremony was fixed for Thursday, April 8, 1937.

The dates for conferring of degrees were fixed as follows: Faculty of Arts, Saturday, May 8, 1937; other faculties, Saturday, May 15, 1937.

Obituary.

STEPHEN BRUCE BURGE.

WE regret to announce the death of Dr. Stephen Bruce Burge, which occurred on February 4, 1937, at Waverley, New South Wales.

PORTRAIT OF PROFESSOR W. A. OSBORNE.

ADDITIONAL subscriptions towards the Professor W. A. Osborne portrait fund have been received from the following: Dr. L. J. Mitchell, Dr. C. C. Perl, Dr. E. R. Sawrey, Dr. W. Summons, Dr. W. F. Orr, Dr. R. G. Orr, Dr. Eric Gutteridge, Dr. S. E. Francis, Dr. E. R. Crisp, Dr. R. G. McPhee, Dr. N. Parker, Dr. Victor Hurley, Dr. E. R. White, Dr. J. S. Buchanan, Dr. H. J. Gray, Dr. Esme Anderson, Dr. R. G. Stott, Dr. Konrad Hiller, Dr. R. O. Mills, Dr. R. N. Scott Good, Dr. R. W. Chambers, Dr. W. R. Groves, Dr. S. Pern, Dr. E. Ford, Dr. P. C. Thomas, Dr. A. E. Brauer, Dr. R. R. Wattenhall, Dr. K. F. O'Donnell, Dr. C. H. Kellaway, Dr. W. H. Fitchett, Dr. A. R. Buchanan, Dr. John Ramsay, Dr. A. S. Joske.

The total amount received is now £88 14s. 6d.

Subscriptions, which have been fixed at half a guinea, may be sent to Dr. B. T. Zwar, Sir H. B. Devine, Sir Alan Newton, Dr. Victor Hurley or Dr. Sidney Sewell, at Medical Society Hall, 426, Albert Street, East Melbourne, C.2.

Diary for the Month.

- MAR. 16.—New South Wales Branch, B.M.A.: Council (Quarterly).
 MAR. 17.—Western Australian Branch, B.M.A.: Branch.
 MAR. 18.—New South Wales Branch, B.M.A.: Annual Meeting.
 MAR. 23.—New South Wales Branch, B.M.A.: Council.
 MAR. 24.—Victorian Branch, B.M.A.: Council.
 MAR. 25.—South Australian Branch, B.M.A.: Branch.
 APR. 2.—Queensland Branch, B.M.A.: Branch.
 APR. 6.—New South Wales Branch, B.M.A.: Organization and Science Committee.
 APR. 7.—Victorian Branch, B.M.A.: Branch.
 APR. 7.—Western Australian Branch, B.M.A.: Council.
 APR. 8.—South Australian Branch, B.M.A.: Council.
 APR. 9.—Queensland Branch, B.M.A.: Council.
 APR. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

Medical Appointments.

Dr. W. S. Myles has been appointed a Member of the Board of the Moora District Hospital, Western Australia.

Dr. C. E. Dorsch has been appointed Honorary Medical Officer at the Barmera Hospital, South Australia.

Dr. J. G. Lawrance has been appointed Government Medical Officer at Alstonville, New South Wales.

Dr. H. M. North has been appointed Senior Medical Officer at the Medical Branch of the Department of Public Instruction of New South Wales.

The following have been appointed Resident Medical Officers at the Adelaide Hospital, Adelaide: Dr. T. J. Constance, Dr. W. F. H. Crick, Dr. D. T. M. Hayes, Dr. Margaret E. MacKay, and Dr. F. G. T. Turner.

Dr. A. B. J. Coope has been appointed Medical Officer of Health to the Wyalkatchem Road Board, pursuant to the provisions of *The Health Act, 1911 to 1935*, of Western Australia.

The following appointments have been made pursuant to the provisions of *The Medical and Other Acts Amendment Act of 1933 of Queensland*: Dr. L. M. McKillop, Dr. H. J. Windsor, Dr. K. J. G. Wilson, Dr. R. G. Quinn, Dr. L. W. N. Gibson and Dr. F. G. Connolly, Members of the Medical Board; Dr. H. B. Ellerton, Dr. J. Coffey and Dr. A. J. Turner, Members of the Nurses and Masseurs Registration Board; Dr. L. St. V. Welch, Member of the Board of Optical Registration.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser", pages xviii to xx.

- SAINT VINCENT'S HOSPITAL, MELBOURNE, VICTORIA: Honorary Officers.
 ROYAL SOCIETY OF MEDICINE, LONDON, ENGLAND: William Gibson Research Scholarship.
 THE EASTERN SUBURBS HOSPITAL, WAVERLEY, NEW SOUTH WALES: Honorary Assistant Surgeon.
 THE PUBLIC SERVICE BOARD, ADELAIDE, SOUTH AUSTRALIA: "Neale" Research Pathologist.
 THE TOOWOOMBA HOSPITALS BOARD, TOOWOOMBA, QUEENSLAND: Junior Resident Medical Officer.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY Hospital are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 178, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

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